
8 Emergency management

Emergency management aims to reduce the level of risk to the community of emergencies occurring, reduce the adverse effects of emergency events, and improve the level and perception of safety in the community. This chapter reports on selected emergency events, including fire, ambulance (pre-hospital care, treatment and transport) and emergency road rescue events. While section 8.1 contains some information on the scope of emergency services organisations' (ESOs) activities, the chapter does not report on the total range of State and Territory ESO activities.

An overview of emergency management appears in section 8.1. A framework of performance indicators is outlined in section 8.2. The data are discussed in sections 8.3 (fire), 8.4 (ambulance) and 8.5 (road rescue), and future directions for performance reporting are discussed in section 8.6. Jurisdictions' comments are provided in section 8.7. The chapter concludes with definitions (section 8.8), a list of supporting tables (section 8.9) and references in section 8.10.

Supporting tables

Supporting tables are identified in references throughout this chapter by an 'A' suffix. For example, table 8A.3 is table 3 in the supporting tables, details of which can be found in section 8.9.

8.1 Overview of emergency management

Emergency management is defined as a range of measures to manage risks to communities and the environment (EMA 2003). The emergency management sector includes a range of ESOs engaged in areas as diverse as risk assessment, State and city governance, legislation, community development, emergency response, urban development and land use management, and community recovery.

The range of events addressed by emergency management includes fires, medical transport and emergencies, rescues, other natural events (such as floods, earthquakes, tsunamis, landslides, heatwaves, cyclones and other storms), consequences of acts of terrorism, technological and hazardous material incidents

(such as chemical spills, harmful gas leaks, radiological contamination, explosions, and spills of petroleum and petroleum products), and the quarantine and control of diseases and biological contaminants. Emergency management aims to create and strengthen safe, sustainable and resilient communities that can avoid or minimise the effects of emergencies and, at the same time, have the ability to recover quickly by restoring their socioeconomic vitality.

Roles and responsibilities

The practice of emergency management requires cooperation among Australian, State, Territory and local governments, industry, community organisations and the community in general.

Australian Government

The primary role of the Australian Government is to support and develop national emergency management capability. This is achieved by a range of activities, including:

- coordinating the Australian Government's material and technical assistance to states and territories in the event of large scale emergencies (through Emergency Management Australia [EMA], which is a division within the Australian Attorney-General's Department)
- providing financial assistance to states, territories and authorities for natural disaster and flood prevention/mitigation (through the Natural Disaster Mitigation Program and the Regional Flood Mitigation Program of the Department of Transport and Regional Services [DOTARS]) and for helping to bear the costs of natural disasters (through DOTARS's Natural Disaster Relief Arrangements)
- providing information, best practice materials and training programs (through EMA)
- providing funding for risk management (through the DOTARS's Natural Disaster Risk Management Studies Program) and undertaking comprehensive risk assessment (through DOTARS and Geoscience Australia)
- supporting community awareness activities (through EMA, the Bureau of Meteorology and Geoscience Australia).

Australian Government agencies also have specific emergency management responsibilities, including: the control of exotic animal diseases; aviation and maritime search and rescue; the management of major marine pollution and meteorological and geological hazards; the provision of firefighting services at

some airports and some defence installations; human quarantine; and research and development.

State and Territory governments

State and Territory governments are responsible for regulatory arrangements for the protection of life, property and the environment, and they have primary responsibility for delivering emergency services (including fire and ambulance services) directly to the community.

Australian, State and Territory governments are jointly responsible for developing building fire safety codes, undertaking fire-related research, formulating policies and providing advice on fire safety.

Local governments

Local governments in most states and territories are involved to varying degrees in emergency management. Their roles and responsibilities include:

- considering community safety in regional and urban planning by assessing risks, and developing mitigation measures and prevention plans to address emergencies such as bushfires and structure fires, floods, storms, landslips and hazardous materials incidents
- improving community preparedness through local emergency and disaster plans
- issuing hazard reduction notices to private land holders and clearing vegetation in high risk public areas
- collecting statutory levies to fund fire and other emergency services
- allocating resources for response and recovery activities
- providing financial and operational assistance to rural fire brigades and/or other voluntary emergency service units.

Emergency service organisations

State and Territory governments and local governments provide emergency management services to the community through a range of ESOs. The structure and reporting lines of ESOs vary across jurisdictions. These organisations range from government departments to statutory authorities, and to smaller branches, agencies or services within larger departments or authorities. In some instances, non-government organisations are also involved in the provision of emergency management services, such as St John Ambulance in WA and the NT.

In all jurisdictions, there is considerable cooperation and coordination among ESOs in response to major emergency events. There can also be substantial cooperative efforts across government, particularly in the recovery stages after a major incident. Events of considerable magnitude and duration, such as earthquakes, cyclones and bushfires, can involve interstate cooperation and support.

Fire service organisations

State and Territory governments provide a range of emergency management activities through agencies historically considered as fire service organisations, including prevention, preparedness, response and recovery (section 8.2). The role of fire service organisations varies across jurisdictions and includes involvement in an expanding variety of activities (table 8A.35). Fire service organisations are involved in:

- developing building fire safety codes and inspecting fire safety equipment and practices
- training and educating the community to achieve community awareness and behavioural change in relation to fire safety and road safety issues
- assisting individuals and communities to prepare for bushfires
- responding to structure, bush, vehicle and other fires
- providing rural land management advice on the role and use of fire
- providing road accident rescue and other rescue services
- managing hazardous material incidents
- administering legislation relating to fire safety, hazardous materials facilities and hazard mitigation.

Fire service organisations work closely with other government departments and agencies — including ESOs such as the State Emergency Service/Territory Emergency Service (SES/TES), police and ambulance services, and community service organisations — to minimise the impact of fire and other emergencies on the community. Their management structure differs across jurisdictions (box 8.1).

Separate urban and rural fire service organisations deliver fire services in most jurisdictions. Land management departments typically also provide rural fire services (although data on these agencies are not reported in this chapter unless stated). Jurisdictions with more than one fire authority may separate services in different ways — for example, NSW separates fire services based on service function and geographic area, whereas Victoria separates fire services by geographic area only.

Some jurisdictions have particular arrangements for the provision of fire services to Indigenous communities. (For more information on fire services provided to Indigenous communities, see SCRCSSP 2002, p. 572.)

Box 8.1 Delivery and scope of activity of primary fire service organisations^a		
	<p>Urban</p> <p>Attend: residential and commercial structure fires; incidents involving hazardous materials; and road accidents within major urban centres.</p>	<p>Rural</p> <p>Attend: local structure fires and other events outside major urban centres; rural non-structure fires (including crop, bushland and grassland fires on private property); and fires in national parks and State forests.</p>
NSW	<p><i>NSW Fire Brigades</i> — this government department reports to the Minister for Emergency Services directly.</p>	<p><i>NSW Rural Fire Service</i> — this government department reports to the Minister for Emergency Services directly.</p>
Vic^b	<p><i>Metropolitan Fire and Emergency Services Board</i> — this statutory authority reports to the Minister for Police and Emergency Services.</p> <p><i>Country Fire Authority</i> — this statutory authority reports to the Minister for Police and Emergency Services.</p>	<p><i>Department of Sustainability and Environment</i> — this department is responsible for public lands.</p>
Qld	<p><i>Queensland Fire and Rescue Service</i> — this service, incorporating the Rural Fire Service, is a division of the Department of Emergency Services, reporting to the Director-General, who reports to the Minister for Emergency Services.</p>	
WA^c	<p><i>Fire and Emergency Services Authority of WA (FESA)</i> — this umbrella statutory authority reports to the Minister for Police and Emergency Services directly.</p>	
SA	<p><i>South Australian Metropolitan Fire Service</i> — this body corporate reports to the Board of the SA Fire and Emergency Services Commission.</p> <p><i>South Australian Country Fire Service</i> — this body corporate reports to the Board of the SA Fire and Emergency Services Commission.</p>	
Tas	<p><i>Tasmania Fire Service</i> — this is the operational arm of the State Fire Commission, which reports to the Minister for Health and Human Services.</p>	
ACT	<p><i>ACT Fire Brigade and ACT Rural Fire Service</i> — these are agencies of the ACT Emergency Services Authority, which reports to the ACT Minister for Police and Emergency Services.</p>	

(Continued on next page)

Box 8.1 (Continued)

NT^d *NT Fire and Rescue Service* — this is a branch of the larger Department of Police, Fire and Emergency Services. The Director of Fire and Rescue Services and Emergency Services, reports to the Commissioner for Police, who reports to the Minister for Police, Fire and Emergency Services.

Bushfires Council — this is a board, which reports to the Minister for Infrastructure, Planning and Environment.

^a Excludes brigades employed by large scale public and private land managers; port, mining and other infrastructure brigades; and land management departments and brigades operating under Australian jurisdiction (for example, airport and defence installations). ^b The Metropolitan Fire and Emergency Services Board provides urban fire services coverage from the Melbourne Central Business District through to the middle and outer suburbs. The Country Fire Authority provides urban and rural fire services coverage for all parts of Victoria other than the Melbourne Metropolitan Fire District and public lands. This includes outer metropolitan Melbourne and regional centres. ^c As the primary fire service organisation in WA, FESA incorporates the Fire and Rescue Service (FRS) and the Bush Fire Service in one Fire Services Division. The FRS career (paid) firefighters serve the gazetted fire districts in the Perth metropolitan area and five major urban regional centres. Volunteers in FRS serve in gazetted fire districts in smaller urban centres in regional areas. FESA provides funding and Bush Fire Service support to local government volunteer bush fire brigades, which are responsible for fire response in all other regional areas apart from national parks and forests. Fire response in national parks and forests is the responsibility of the Department of Conservation and Land Management. ^d The NT Bushfires Council is primarily a land management organisation and responds only to grass fires and bushfires on land outside the Fire and Rescue Service response areas. The NT statistics in this chapter do not apply to the Bushfires Council unless stated.

Source: State and Territory governments (unpublished).

Ambulance service organisations

The role of ambulance service organisations across jurisdictions generally includes:

- providing emergency pre-hospital patient care and transport in response to sudden injury and illness
- retrieving emergency patients
- accessing emergency pre-hospital patients (for example, in confined spaces and hazardous environments)
- undertaking interhospital patient transport
- conducting road accident rescue
- planning and coordinating patient services in multi-casualty events.

State and Territory governments provide ambulance services in most jurisdictions. In WA and the NT, St John Ambulance is under contract to the respective governments as the primary provider of ambulance services (box 8.2).

The Royal Flying Doctor Service responds to medical emergencies in remote inland areas of Australia. New South Wales, Queensland and Tasmania contract the Royal Flying Doctor Service to provide aircraft and pilots for their air ambulance services, and the costs of those services are included in the ambulance costs reported for these jurisdictions. Data relating to other Royal Flying Doctor Service activities are not included in the Report (see also section 8.4 for a discussion of air ambulance services).

Some jurisdictions have particular arrangements for the provision of ambulance services to Indigenous communities. (For an example of ambulance services provided to Indigenous communities in Queensland, see SCRCSSP 2002, p. 574. For information on Indigenous access to air medical services, see SCRCSSP 2003, pp. 8.7–8.8.)

Some government ambulance service organisations also provide first aid training courses, as do non-government providers such as St John Ambulance and the Australian Red Cross.

Box 8.2 Relationships of primary ambulance response and management organisations to government

<i>NSW</i>	<i>Ambulance Service of NSW</i> — a statutory authority reporting to the Minister for Health
<i>Vic</i>	<i>Metropolitan Ambulance Service, Rural Ambulance Victoria, and Alexandra and District Ambulance Service</i> — separate statutory bodies reporting to the Minister for Health
<i>Qld</i>	<i>Queensland Ambulance Service</i> — a division of the Department of Emergency Services, reporting to the Director-General, who reports to the Minister for Emergency Services
<i>WA</i>	<i>St John Ambulance</i> — an incorporated not-for-profit organisation under contract to the WA Government
<i>SA</i>	<i>SA Ambulance Service (SAAS)</i> — SAAS is the trading name of SA St John Ambulance Service Inc., established under the <i>Associations Incorporations Act 1985</i> (SA). The <i>Ambulance Services Act 1992</i> (SA) authorises and licenses SAAS to provide an ambulance service in SA
<i>Tas</i>	<i>Tasmanian Ambulance Service</i> — a statutory service of the Hospital and Ambulance Division of the Department of Health and Human Services
<i>ACT</i>	<i>ACT Ambulance Service</i> — an agency of the ACT Emergency Services Authority, reporting to the ACT Minister for Police and Emergency Services
<i>NT</i>	<i>St John Ambulance</i> — an incorporated not-for-profit organisation under contract to the NT Government

Source: State and Territory governments (unpublished).

State Emergency Services and Territory Emergency Services

State and Territory governments contribute to a range of emergency management activities through SES/TES. The activities of SES/TES (table 8A.36) include prevention, preparedness, response and recovery (section 8.2). The role of SES/TES across jurisdictions encompasses a variety of activities. The SES/TES are primarily the combat agencies responsible for flood and storm operations but also have a role in attending road rescue incidents and performing extrications.

Other ESOs

The Review does not yet report on the performance of Australian Government or local government emergency management services or their agencies.

Volunteers in emergency management

More than 250 000 fire, ambulance and SES/TES volunteers play a significant role in the provision of emergency services in Australia (table 8.1). The input by volunteers is particularly important in rural and remote service provision, where caseload/incident levels are low but community safety needs are still a high priority.

Volunteers in many ESOs — including fire, ambulance, SES/TES, marine rescue, and recovery and relief agencies — provide services relating to emergency situations and disasters resulting from natural hazards such as wildfires, floods, severe storms, earthquakes, cyclones, and human caused and technological events. In total, over 500 000 volunteers from ESOs and other organisations (such as the Red Cross) participate each year in the management of a broad range of emergency situations and disasters (EMA 2001).

Table 8.1 Volunteers in emergency service organisations

	NSW ^a	Vic ^b	Qld ^c	WA ^d	SA ^e	Tas ^f	ACT	NT	Aust
2002-03									
ASOs	57	387	403	2 748	1 654	530	–	22	5 801
FSOs	68 676	58 000	46 677	23 743	12 244	4 912	650	455	215 357
SES/TES	9 072	5 129	18 265	2 308	6 808	550	180	539	42 851
Total	77 805	63 516	65 345	28 799	20 706	5992	830	1 016	264 009
2003-04									
ASOs	115	501	445	2 720	1 583	567	–	20	5 951
FSOs	73 059	58 583	44 286	22 328	11 161	4 766	810	521	215 514
SES/TES	10 026	4 839	17 211	2 039	2 050	450	180	582	37 377
Total	83 200	63 923	61 942	27 087	14 794	5 783	990	1 123	258 842
2004-05									
ASOs	118	819	575	2 624	1 530	448	–	17	6 131
FSOs	73 072	58 662	44 648	28 319	11 307	4 668	1 022	551	222 249
SES/TES	9 835	4 350	12 456	2 015	1 998	575	244	495	31 393
Total	83 025	63 831	57 679	32 958	14 835	5 691	1 266	1 063	259 773

ASO = ambulance service organisation. FSO = fire services organisation. ^a For NSW, fire service organisation numbers include community fire unit members. ^b Victorian ambulance service organisation data include remunerated volunteers. These volunteers were remunerated for some time (usually response time), but not for other time (usually on-call time). There were 362 remunerated volunteers in 2003-04 and 335 in 2002-03. ^c Ongoing audits of SES database have resulted in large numbers of inactive volunteers being removed. ^d WA data include multiskilled emergency service volunteers. ^e Fire service organisation numbers include retained firefighters. ^f Tasmania has reviewed its database to exclude inactive volunteers. – Nil or rounded to zero.

Source: State and Territory governments (unpublished); tables 8A.5, 8A.21 and 8A.31.

Although volunteers make a valuable contribution, they should not be counted as an entirely free resource. For example, governments incur costs in supporting volunteers to deliver emergency services in their communities by providing funds and support through infrastructure, training, uniforms, personal protective equipment, operational equipment and support for other operating costs.

Emergency management events

This chapter focuses on the performance of emergency management in relation to three types of emergency event: fire events (section 8.3), ambulance events (section 8.4), and road rescue events (section 8.5). There are, however, many other categories of emergency management that are not currently reported, including: rescues on land (other than road rescues) and at sea; natural events (such as floods, earthquakes, landslides, heatwaves, cyclones and other storms); the consequences of acts of terrorism; technological and hazardous material incidents (such as chemical spills, harmful gas leaks, radiological contamination, explosions and spills of petroleum and petroleum products); and the quarantine and control of diseases and biological contaminants.

8.2 Framework for measuring the performance of emergency management

The broad aim of emergency management is to reduce the level of risk to the community from emergencies. The framework of performance indicators in this chapter is based on the objectives for emergency management, which are common to all Australian ESOs (box 8.3). These objectives are nationally agreed and developed by the Emergency Management Working Group.

Box 8.3 Objectives for emergency management

Emergency management services aim to provide highly effective, efficient and accessible services that:

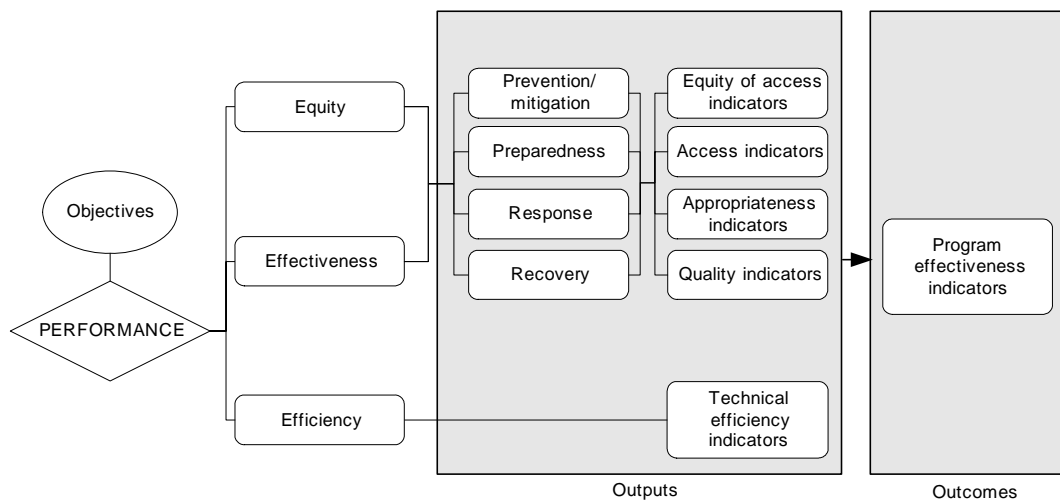
- reduce the adverse effects of emergencies and disasters on the Australian community (including people, property, infrastructure, economy and environment)
- contribute to the management of risks to the Australian community
- enhance public safety.

Emergency service organisations aim to reduce the number of emergency events through prevention activities, and to reduce the impact of emergency events through community and operational preparedness. Fast, effective response and recovery services are critical to containing hazards and managing the consequences of emergency events. The prevention/mitigation, preparedness, response and recovery performance indicator framework (figure 8.1) used in this chapter reflects all these activities.

The general performance indicator framework presented in figure 8.1 has been applied to fire events (section 8.3), ambulance events (section 8.4) and road rescue events (section 8.5).

The outcome indicators in the performance framework provide an indication of the effects of ESOs on the community, economy and environment. Those currently reported are, for fire events, the 'fire death rate', the 'fire injury rate', the 'median dollar losses from structure fire', 'total property losses from structure fire', and for ambulance events, the 'survival rate from out-of-hospital cardiac arrest'.

Figure 8.1 **General performance indicator framework for emergency management**



The framework uses the widely accepted ‘comprehensive approach’ (prevention/mitigation, preparedness, response and recovery) to classify the key functions common to ESOs in managing emergency events. Outputs in the emergency event frameworks are grouped accordingly.

- *Prevention and mitigation* — the results of measures taken in advance of an emergency aimed at decreasing or eliminating its impact on the community and the environment. Activities that contribute to outputs of prevention and mitigation include: advice on land management practice for hazard reduction and prevention; the inspection of property and buildings for hazards, compliance with standards and building codes, and levels of safe practices; the preparation of risk assessment and emergency management plans; risk categorisation for public information campaigns; and public information campaigns and educational programs to promote safe practices in the community.
- *Preparedness* — the results of measures to ensure, if an emergency occurs, that communities, resources and services are capable of responding to, and coping with, the effects. Activities that contribute to outputs of preparedness include: public education and training; emergency detection and response planning (including the installation of smoke alarms and/or sprinklers); hazardous chemicals and material certification, and the inspection of storage and handling arrangements; the exercising, training and testing of emergency service personnel; and standby and resource deployment and maintenance. Preparedness also involves establishing equipment standards and monitoring adherence to those standards.

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- *Response* — the results of strategies and services to control, limit or modify the emergency to reduce its consequences. Activities that contribute to outputs of response include: the implementation of emergency plans and procedures; the issuing of emergency warnings; the mobilisation of resources in response to emergency incidents; the suppression of hazards (for example, fire containment); the provision of immediate medical assistance and relief; and search and rescue.
 - *Recovery (ESOs)* — the results of strategies and services to return agencies to a state of preparedness after emergency situations. Activities that contribute to outputs of emergency services recovery include: critical incident stress debriefing; and the return of ESO resources to the state of readiness specified in their response plan(s).
 - *Recovery (community)* — the results of strategies and services to support affected individuals and communities in their reconstruction of physical infrastructure and their restoration of emotional, social, economic and physical wellbeing. Activities that contribute to outputs of community recovery include: the restoration of essential services; counselling programs; temporary housing; long term medical care; and public health and safety information.

Effective prevention activities reduce the requirement to respond to, and recover from, emergency events. Every jurisdiction is placing a greater emphasis on preventative activities. Efficient resource use reduces the risk to the community by supporting a greater availability of services.

8.3 Fire events

This section contains information on the performance of ESOs in providing emergency management services for fire events. A fire event is an incident that is reported to a fire service organisation and requires a response. Fire events include (but are not limited to):

- structure fires (that is, fires inside a building or structure), regardless of whether there is damage to the structure
- landscape fires, including bushfires and grass fires, regardless of the size of the area burnt.

Emergency management services for fire events

Fire service organisations are the primary agencies involved in providing emergency management services for fire events. A range of other agencies may also

be involved, including ambulance service organisations, SES/TES and police services (table 8A.38).

Full reporting would ideally include information on the resources allocated by all ESOs to the management of fire events. Although this information is currently unavailable, work is underway to improve this information for future reports. The descriptive information provided below on funding, incidents and human resources relate to fire service organisations only (although, as discussed in section 8.1, fire service organisations are involved in other activities not directly related to fire events).

Funding

Total funding of the fire service organisations covered in this Report was over \$1.7 billion in 2004-05 (excluding funding for land management agencies). Nationally, over the period 2000-01 to 2004-05, funding increased with an average annual growth rate of 5.0 per cent. Within jurisdictions, funding increased (in real terms) for all jurisdictions except the NT (table 8.2).

**Table 8.2 Funding of fire service organisations (2004-05 dollars)
(\$ million)^a**

	<i>NSW</i> ^b	<i>Vic</i>	<i>Qld</i> ^c	<i>WA</i> ^d	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Aust</i> ^e
2000-01	486.4	350.9	270.4	109.7	124.9	42.4	42.2	23.9	1 450.8
2001-02	537.3	345.6	267.7	102.8	121.5	42.0	23.6	21.7	1 462.2
2002-03	617.3	399.3	300.5	106.7	126.4	51.3	30.6	15.4	1 647.4
2003-04	591.4	451.3	308.4	121.1	134.5	50.0	39.1	16.4	1 712.1
2004-05	622.0	471.9	296.3	115.3	132.9	49.5	43.5	20.6	1 751.9

^a Funding levels are adjusted using the Australian Bureau of Statistics (ABS) gross domestic product price deflator (2004-05 = 100) (table A.26) to arrive at a constant price measure. ^b NSW Fire Services data for 2001-02, 2002-03 and 2004-05 are artificially inflated by significant abnormal grants associated with natural disasters. ^c The State Government grant for Queensland in 2002-03 and 2003-04 included funding for a 6 per cent equity return, equal to \$15 million in 2002-03 and \$17 million in 2003-04. However, a whole of government decision in 2004-05 eliminated the equity return expense performance management regime and related funding with effect from 1 July 2004. This has resulted in a reduction of \$18 million in both revenues and expenses in 2004-05. ^d For WA, data for 2003-04 include operational and recurrent costs of local government Bush Fire Brigades, now funded by the Emergency Services Levy. ^e Totals may not sum as a result of rounding.

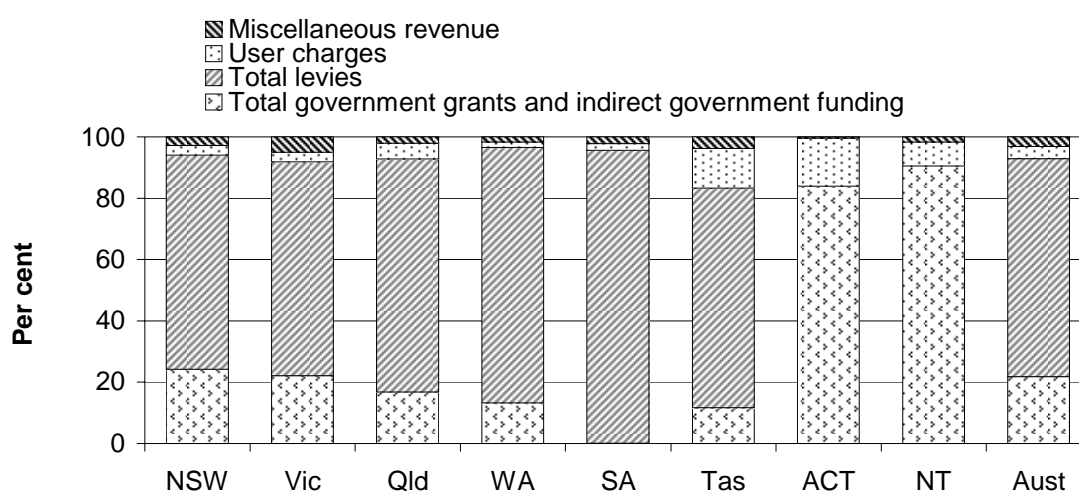
Source: State and Territory governments (unpublished); table 8A.1.

Fire levies were the primary source of funding in 2004-05 in all jurisdictions except the ACT and the NT, where Territory governments were the most important source of funds. Governments usually provide the legislative framework for the imposition of fire levies, rather than directly collecting the levies themselves. In 2004-05, fire

levies were raised from levies on property owners or, in some jurisdictions, from levies on both insurance companies and property owners (table 8A.1). In addition to relying on funded resources, all states and territories rely on volunteer firefighters, who make a significant contribution to the community.

Nationally, 21.7 per cent of funding for fire service organisations was provided by government as government grants and indirect government revenue in 2004-05, with the proportion varying across jurisdictions (figure 8.2).

Figure 8.2 Major sources of fire service organisation funding, 2004-05



Source: State and Territory governments (unpublished); table 8A.1.

Fires and other emergency incidents

As noted in box 8.1, various urban and rural fire service organisations operate within the jurisdictions, and data on reported fires and other incidents were not available for all fire service organisations in all jurisdictions.

Fire service organisations are required by legislation to respond to all calls, and an incident cannot be deemed to be a false report until the fire service organisation has responded and investigated the site. Nationally, 32.0 per cent or 113 178 of the 353 143 reported incidents were fires, and 68.0 per cent were other emergencies and incidents in 2004-05, with these proportions varying across jurisdictions (table 8A.2).

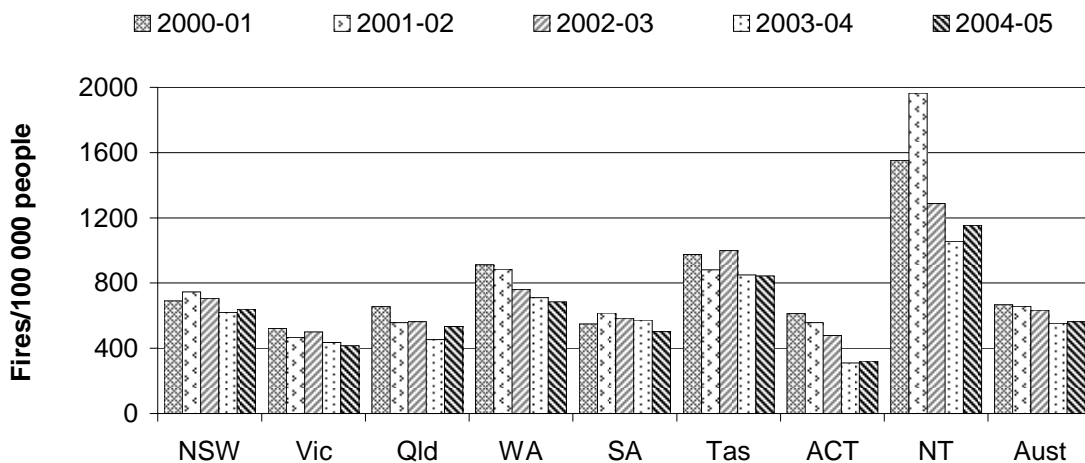
The proportion of fire types varied substantially across jurisdictions in 2004-05, with fires within or involving a structure the least attended type of fire for all jurisdictions except the ACT (table 8A.2). Although structure fires are relatively

uncommon compared with landscape (bush and grass) fires for example, their emphasis in this chapter is due to their high threat to life and property.

Total fire incidents attended by fire service organisations per 100 000 people

Nationally, 563 fire incidents per 100 000 people were attended in 2004-05, with the number generally declining over the period since 2000-01 (figure 8.3).

Figure 8.3 Total fire incidents attended by fire service organisations per 100 000 people^{a, b, c, d, e, f}



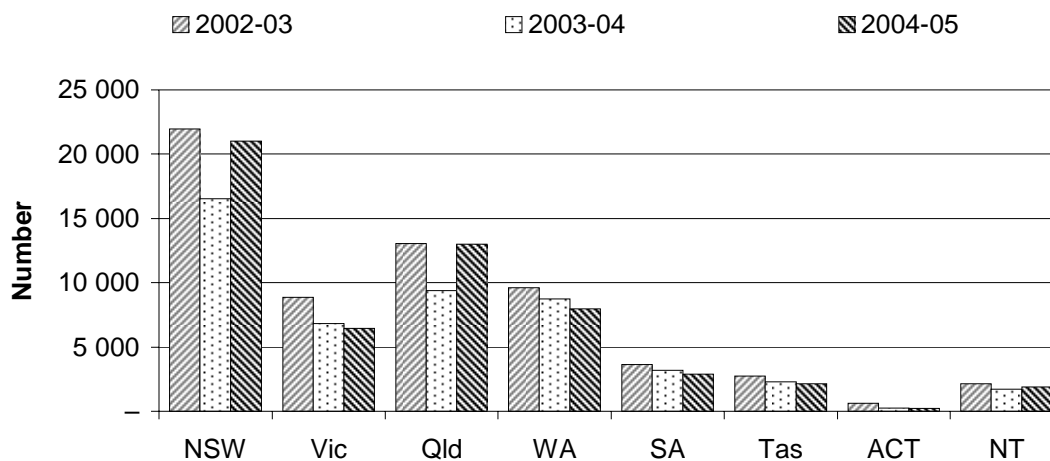
^a Total fire incidents data include landscape fire incidents attended by fire service organisations. ^b Includes data for urban or rural fire service organisations in the ACT. ^c Due to data collection issues, 2000-01 data for the NSW Fire Brigades are derived from a sample representing 85 per cent of the incidents. NSW 2000-01 data for areas serviced by the NSW Rural Fire Service have been derived from one third of Rural Fire Districts. The increase in incident levels for 2001-02 was due to the expansion of the incident reporting system to all NSW Rural Fire Districts. ^d In Queensland, accurate identification of incidents attended by both Queensland Fire and Rescue Service (QFRS) urban and rural crews is not possible at this stage. Reporting of incident attendance by QFRS rural crews is incomplete due to voluntary reporting procedures. ^e Does not include data from the NT Bushfires Council. ^f The average for Australia excludes rural fire service data for some years as per the jurisdictions' caveats.

Source: State and Territory governments (unpublished); table 8A.10.

Total reported landscape fire incidents

Nationally, 55 536 landscape (bush and grass) fire incidents were reported by fire service organisations and land management agencies in 2004-05 (table 8A.3) Landscape fire incidents reported to land management agencies are excluded for some jurisdictions.

Figure 8.4 Fire service organisations and land management agencies reported total landscape (bush and grass) fire incidents^{a, b, c, d, e}



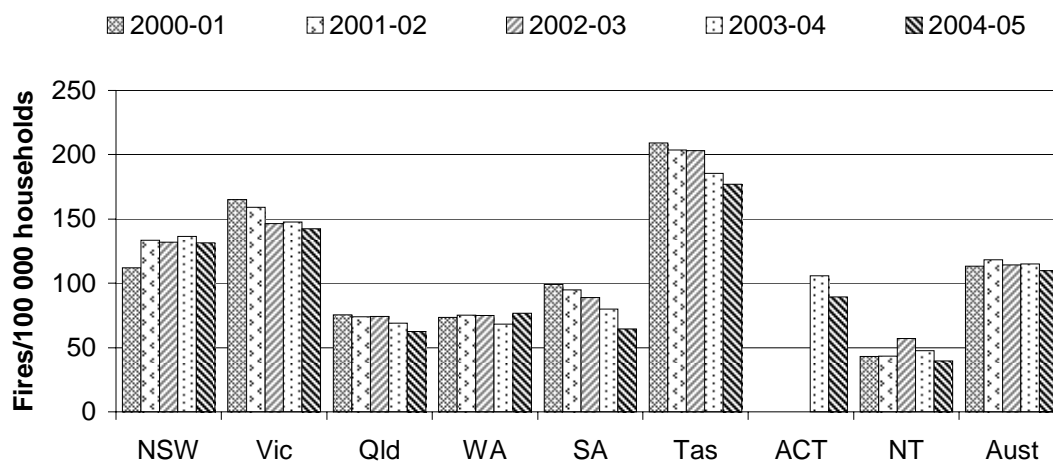
^a NSW data include data from the NSW Department of Environment and Conservation, the NSW Rural Fire Service and the NSW Fire Brigades for all bushfires and grass fires regardless of size of area burnt. ^b Queensland data include QFRS urban stations and rural brigades. Accurate identification of incidents attended by both QFRS urban and rural crews is not possible at this stage. Reporting of incident attendance by QFRS rural crews is incomplete due to voluntary reporting. ^c Data for WA include landscape fires, for which the Department of Conservation and Landscape Management (CALM) was the lead agency. CALM was the lead agency for 525 landscape fires in 2002-03, 353 in the 2003-04, and 364 in the 2004-05. ^d For Tasmania, data refer to all fire brigades, both full time and volunteer. ^e NT data exclude the NT Bushfires Council.

Source: State and Territory governments (unpublished); table 8A.3.

Accidental residential structure fires reported to fire service organisations per 100 000 households

The rate of accidental residential structure fires per 100 000 households, is reported in figure 8.5. Although the national rate has been relatively constant, different trends appear in different jurisdictions.

Figure 8.5 **Accidental residential structure fires reported to fire service organisations^{a, b}**



^a This measure may not be entirely comparable. The rate of accidental residential structure fires per 100 000 households is affected by the number of fires where the cause has been determined and classified by fire service personnel. Includes data for both urban and rural fire service organisations for the ACT. ^b QFRS Rural Incident database does not currently record the necessary information to calculate this measure.

Source: ABS Cat. no. 4102.0 (various years); State and Territory governments (unpublished); table 8A.4.

Human resources

Human resources refers to any person delivering a firefighting or firefighting-related service, or managing the delivery of this service, including:

- firefighters (qualified paid and volunteer firefighters)
- support personnel (any paid person or volunteer directly supporting the operational provider, including technical and communications personnel and personnel staff).

Nationally, 14 222 full time equivalent (FTE) paid personnel were involved in the delivery of fire services in 2004-05. Nationally, 11 157 FTE or 78.5 per cent of the 14 222 FTE paid personnel were firefighters. Volunteer firefighters (222 249 people) also participated in the delivery of fire services in 2004-05 (table 8A.5).

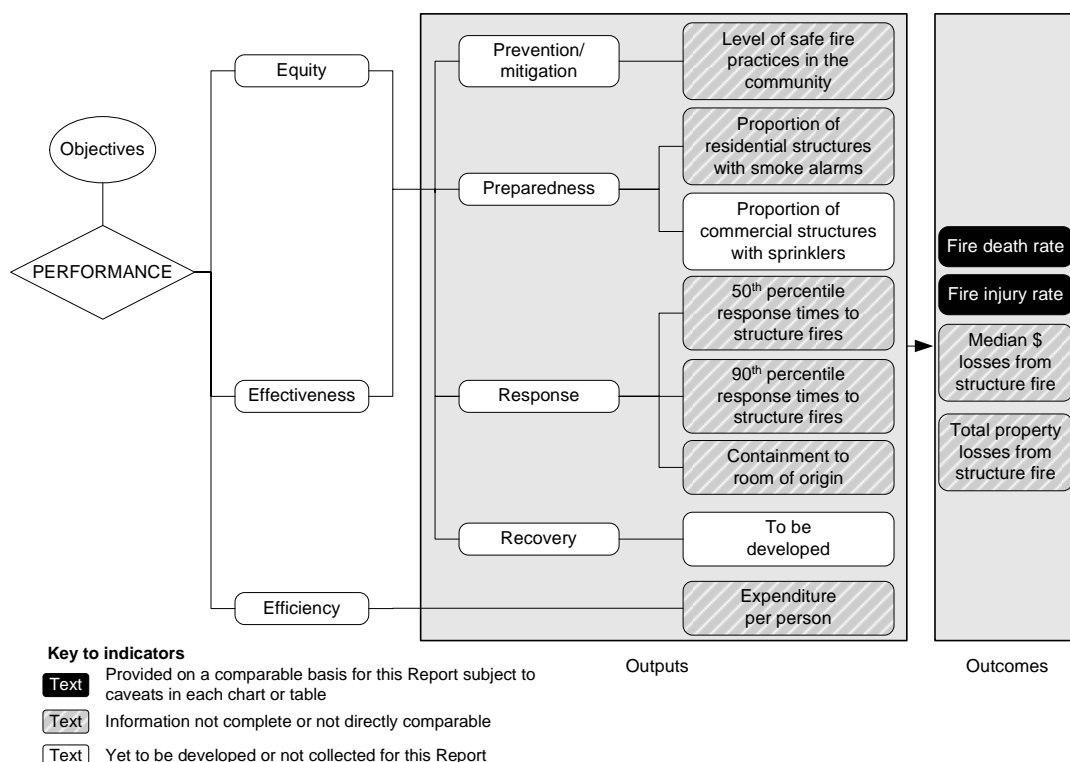
Framework of performance indicators

Figure 8.6 presents the performance indicator framework for fire events, based on the general framework for all emergency events. Definitions of all indicators are provided in section 8.8.

The performance indicator framework for fire events shows which data are comparable in the 2006 Report (figure 8.6). For data that are not considered directly comparable, the text includes relevant caveats and supporting commentary. Chapter 1 discusses data comparability from a Report-wide perspective (see section 1.6).

Performance information is reported for a number of indicators. These results might have been influenced by factors such as differences in climatic and weather conditions, the sociodemographic and topographic composition of jurisdictions, property values and dwelling construction types. Importantly, jurisdictions also have diverse legislative fire protection requirements.

Figure 8.6 Performance indicators for fire events



Results need to be interpreted with care because data might have been derived from small samples (for example, jurisdictions' fire safety measures surveys) or may be

highly variable as a result of relatively small populations (as in Tasmania, the ACT and the NT).

The role of volunteers, particularly for country and rural fire brigades, also needs to be considered when interpreting some indicators (such as fire service organisation expenditure per 1000 people). Volunteer personnel provide a substantial proportion of fire services (and emergency services more generally) (ABS 2001a). While costs such as the training and equipment associated with volunteers are included in the cost of fire service provision, the labour costs of providing fire services would be much greater without volunteers (assuming these functions were still performed).

Information has not been reported for all fire events in each jurisdiction consistently over time. Reported results sometimes exclude rural fire events, so performance data are not always directly comparable across jurisdictions. Fire service organisations are cooperating to improve and enhance the standards for the collection of fire events data, which is evident by the inclusion of rural fire service organisations data for more jurisdictions in more current years. Differences in counting rules are expected to be minimised in future reports.

Key performance indicator results

Outputs — equity and effectiveness

Outputs are measured by the ‘level of safe fire practices in the community’; ‘the proportion of residential structures with smoke alarms’; ‘the proportion of commercial structures with sprinklers’; ‘the 50th and 90th percentile response times to structure fires’; ‘containment to the room of origin’; and ‘expenditure per person’.

Prevention/mitigation — level of safe fire practices in the community

One measure of the extent of prevention/mitigation in the community is ‘the level of safe fire practices in the community’ (box 8.4). Selected fire risk management/mitigation strategies across jurisdictions are identified in table 8A.33. Nationally consistent data on household fire safety measures installed or prevention procedures followed were previously available from the Australian Bureau of Statistics (ABS) Population Survey Monitor (PSM) (table 8A.12), which has been discontinued. Nationally consistent data are not currently available.

Data from 2001-02 onwards are sourced from jurisdictional collections following the cessation of the PSM in 2001. They are not strictly comparable with the PSM data due to methodological differences.

Box 8.4 Level of safe fire practices in the community

‘The level of safe fire practices in the community’ is included as an output indicator of governments’ objective to reduce the adverse effects of fires on the Australian community and manage the risk of fires.

Holding other factors constant, the higher the proportion of households with a fire safety measure installed or prevention measure followed, the less likely are fires to occur or cause excessive damage. This indicator does not provide information on the degree to which practices under consideration contribute to fire prevention and mitigation.

Previously reported data are no longer collected by the ABS. The Steering Committee has identified this indicator for development and reporting in future.

Preparedness — proportion of residential structures with smoke alarms

One measure of the extent of preparedness in the community is ‘the proportion of residential structures with smoke alarms’ (box 8.5).

Box 8.5 Proportion of residential structures with smoke alarms

‘The proportion of residential structures with smoke alarms’ is included as an output indicator of governments’ objective to reduce the adverse effects of fire on the Australian community through preparedness measures.

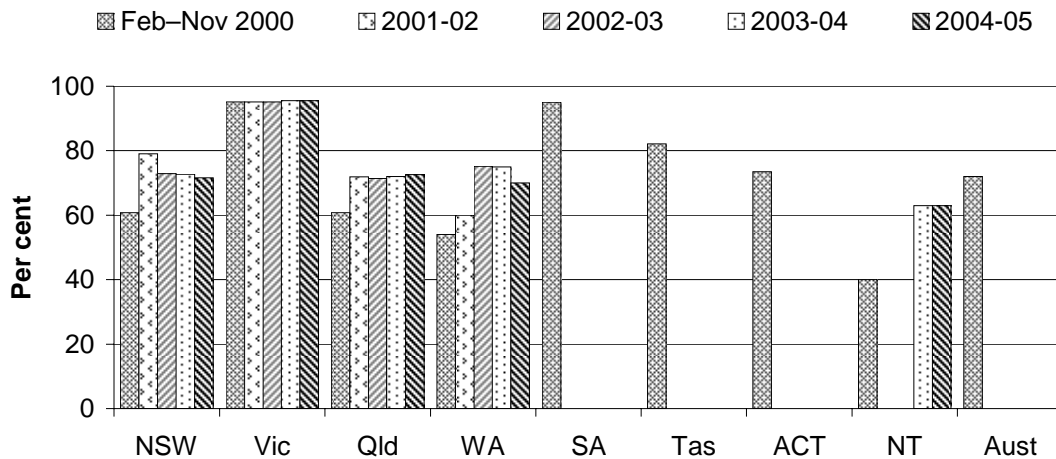
The indicator is defined as the number of households with an operational smoke alarm installed, divided by the total number of households.

The higher the proportion of households with an operational smoke alarm installed, the greater is the likelihood that the adverse effects of fire will be avoided or reduced.

Nationally consistent and complete data are not currently available on ‘the proportion of residential structures with smoke alarms’. Nationally consistent data were last available in 2000, from the discontinued ABS Population Survey Monitor (PSM). Data from 2001-02 onwards are sourced from jurisdictional collections following the cessation of the PSM in 2001, and are not strictly comparable with the PSM data due to methodological differences.

Five jurisdictions (NSW, Victoria, Queensland, WA and the NT) conducted surveys in 2004-05, collecting data on total households that had an operational smoke alarm or smoke detector installed (figure 8.7).

Figure 8.7 Households with an operational smoke alarm installed^{a, b, c, d, e}



^a Caution needs to be used where there are small differences in the Population Survey Monitor (PSM) results, which are affected by sample and estimate size. The PSM ceased in the final quarter for 2000. From 2001-02, data are from jurisdictional collections and are not strictly comparable with the Population Survey Monitor. ^b NSW data for 2001-02, 2002-03, 2003-04 and 2004-05 are sourced from the NSW Population Health Survey (HOIST), NSW Department of Health. Data for 2001-02 represent only 6 months of 2002 but later years each reflect 12 months of surveys. While the prevalence for 2004 (71.6 per cent) is less than that reported for 2003 (72.8 per cent) and 2002 (73.0 per cent) this may reflect normal sample survey variation rather than a significant underlying trend. This is evident because the 95 per cent confidence interval for 2004 (70.1 per cent – 72.9 per cent) overlaps with the confidence intervals for 2003 (71.1 per cent – 73.9 per cent) and 2002 (71.9 per cent – 74.1 per cent). Because the data are collected from a sample of the population, the 95 per cent confidence interval provides a range of values that should contain the actual value for the population 95 per cent of the time. In general, a wider confidence interval reflects less certainty in the indicator estimate. ^c Victorian 2001-02 data are sourced from a random telephone survey of 2304 respondents residing within the 23 local government areas significant to the metropolitan fire district. MFESB commissioned Crime Prevention Victoria to develop a survey around fire safety issues through their Local Safety Survey. 2004-05 data are based on the results of the most recent survey conducted in April 2004. ^d Queensland data are collected by the Office of Economic and Statistical Research, as part of the November 2004 Queensland Household Survey. The figure is an estimate for the whole population of Queensland. ^e For WA, 2002-03 data are collected by a market research organisation (random telephone survey with residents of Perth households). 2003-04 market research also a telephone survey, covering metropolitan and country residents. Apparent fall in percentage for 2004-05 data reflects more stringent survey design and collection by the Australian Bureau of Statistics: ABS Home Safety and Security, Western Australia, 4526.5.55.001, April 2005. Data collected October 2004.

Source: ABS (2001b); State and Territory governments (unpublished); table 8A.11.

Preparedness — proportion of commercial structures with sprinklers

The Steering Committee has identified ‘the proportion of commercial structures with sprinklers’ as an indicator of preparedness for fire events (box 8.6). Data for this indicator, however, were not available for the 2006 Report.

Box 8.6 Proportion of commercial structures with sprinklers

'The proportion of commercial structures with sprinklers' will provide an output indicator of governments' objective to reduce the adverse effects of fire on the Australian community through preparedness and mitigation.

The indicator is defined as the number of commercial structures with sprinklers installed, divided by the total number of commercial structures.

The higher the proportion of commercial structures with sprinklers installed, the greater is the likelihood that the adverse effects of fire are reduced. This indicator will not provide information on the operational status of sprinkler systems or their contribution to fire prevention.

Response

Response times and containment of structure fires (to the object or room of origin) are indicators of the effectiveness of fire service organisations in terms of their ability to respond to and suppress fires. Response times to structure fires are reported first, followed by containment to room of origin.

Response — 50th and 90th percentile response times to structure fires

The 50th and 90th percentile response times to structure fires provide a measure of response activities (box 8.7). The data relate to the performance of the reporting agency (or agencies) only, not necessarily to the performance of all fire service organisations within each jurisdiction. Response time data need to be interpreted with care because performance is not strictly comparable across jurisdictions, given the following:

- Response time data for some jurisdictions represent responses to urban, rural and remote areas.
- Responses may include career firefighters, auxiliary/part time firefighters and volunteers.
- While definitions on response times are consistent, not all jurisdictions have systems in place to capture all components of response time for all cases from the time of the call to arrival at the scene. Some agencies use a manual system to calculate response time figures, while other services retrieve the data from computer aided dispatch (CAD) systems.

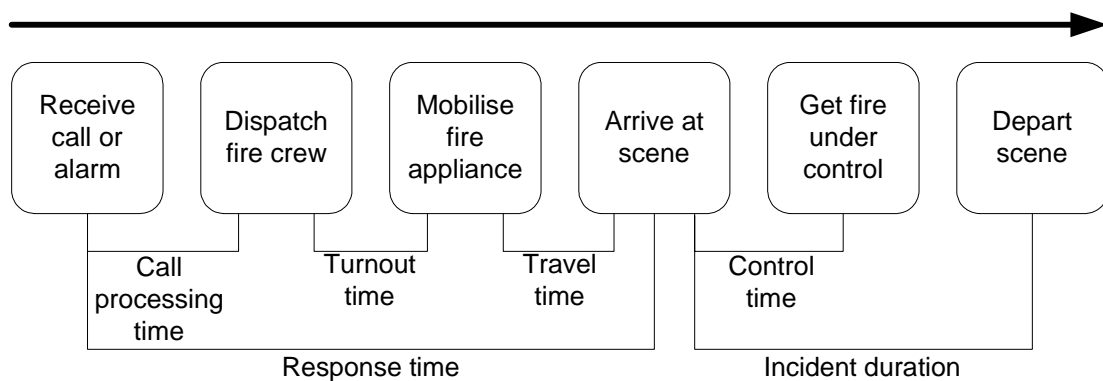
Box 8.7 50th and 90th percentile response times to structure fires

'50th and 90th percentile response times to structure fires' are included as output indicators of governments' objective to reduce the adverse effects of fire on the Australian community through timely response.

The indicator '50th percentile response time' is defined as the time within which 50 per cent of the first responding fire resources arrive at the scene of structure fires. Similarly, '90th percentile response time' refers to the time within which 90 per cent of the first responding fire resources arrive at the scene of structure fires. Structure fires are those fires in housing and other buildings. The response time is defined as the interval between the receipt of the call at the dispatch centre and the arrival of the vehicle at the scene (that is, when the vehicle is stationary and the handbrake is applied). This and other intervals are illustrated in figure 8.8.

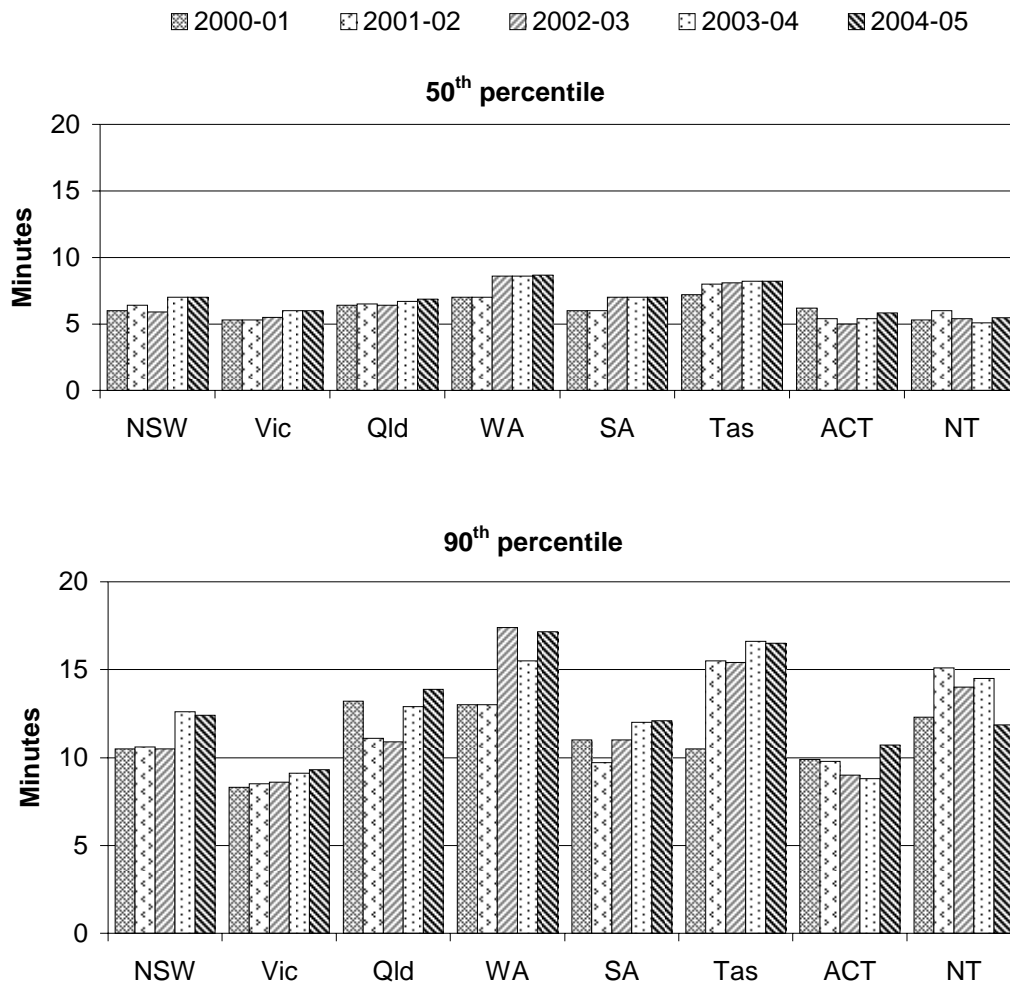
Shorter response times are more desirable.

Figure 8.8 Response time points and indicators for fire events



Response times vary between jurisdictions (figure 8.9). Response times also vary within jurisdictions depending on the remoteness of the area in which the responses occur (among other factors). Response times can be segmented into remoteness areas based on the ABS Australian Standard Geographical Classification (figure 8.10). Response times can be affected in regional and remote areas, where response is generally from home to station and then to the incident.

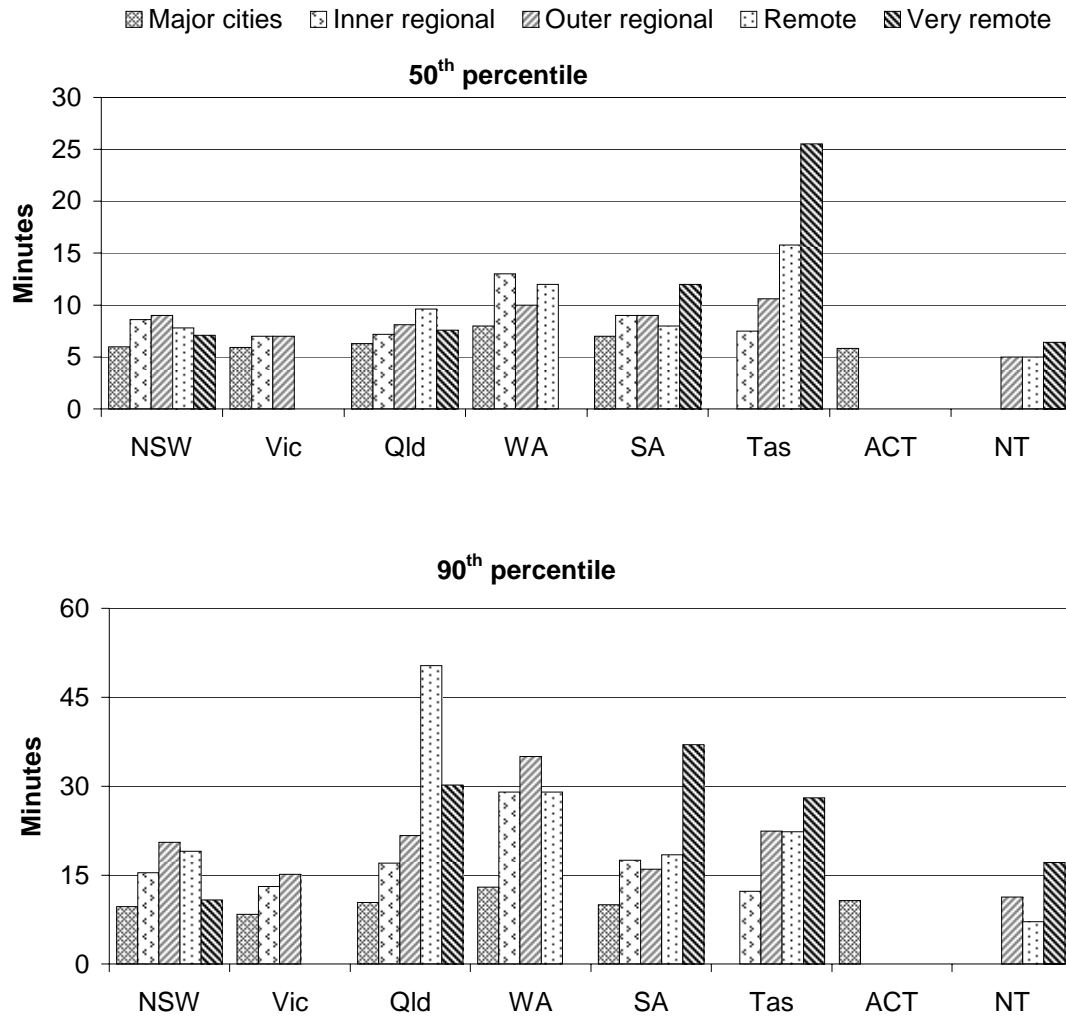
Figure 8.9 Response times to structure fires^{a, b, c, d, e, f, g}



^a Differences between jurisdictions in definitions of response times, geography, personnel mix, and system type (manual or CAD) affect the comparability of response times data. ^b Includes data for both urban and rural fire service organisations in the ACT. ^c NSW data for 2000-01 and 2001-02 are for NSW Fire Brigades only, but include responses to calls outside NSW Fire Brigades' designated fire district. Due to data collection issues, data for 2000-01 are derived from a sample representing 85 per cent of the incidents. Data for 2002-03 and onwards include responses from the NSW Fire Brigades and the NSW Rural Fire Service. ^d Victorian data for 2001-02 and 2002-03 do not include all of the call processing time (approximately 36-40 seconds per response time). Response times for 2003-04 onwards include call handling time and are consistent with the nationally agreed definition. ^e For Queensland, collection procedures do not differentiate between responses made under normal road conditions and emergency responses. Response times for QFRS Rural brigade crews are not included. Only primary exposure incidents with completed geocodes and response times are included. ^f WA data exclude reports with incorrect time details. From 2000-01, data include both urban and rural fire services. ^g Tasmania has a far larger proportion of its population in small rural towns and other rural areas than all jurisdictions according to the Rural, Remote and Metropolitan Areas (RRMA) index.

Source: State and Territory governments (unpublished); table 8A.13.

Figure 8.10 Response times to structure fires, by geographic area, 2004-05^{a, b, c, d, e, f}



^a Differences between jurisdictions in definitions of response times, geography, personnel mix, and system type (manual or CAD), affect the comparability of response times data. ^b NSW data include responses from the NSW Fire Brigades and the NSW Rural Fire Service. ^c For Queensland, response times for QFRS Rural brigade crews are not included as response times are not recorded in 97 per cent of incidents. QFRS did not capture data on whether vehicles travelled under normal road conditions or as emergency calls, therefore all structural fire incidents are included. Only primary exposure incidents with completed geocodes and response times are included. ^d In SA, the Country Fire Service and the Metropolitan Fire Service do not have geocoded data. SA data include incident records with both alarm and arrival times. Excludes response times of 12 hours or more. ^e For Tasmania, figures include data provided by all fire brigades, both full time and volunteer. ^f For the NT, data do not include data from the NT Bushfires Council.

Source: State and Territory governments (unpublished); table 8A.14.

Response — containment to room of origin

Another indicator of response effectiveness for structure fires is ‘containment to the room of origin’ (box 8.8).

Box 8.8 Containment to the room of origin

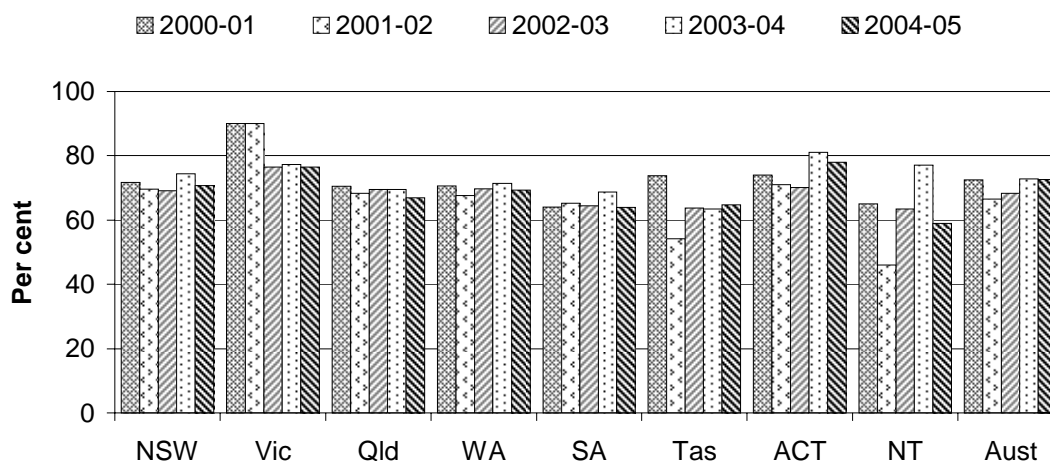
'Containment to the room of origin' is included as an output indicator of governments' objective to reduce the adverse effects of fire emergency events on the Australian community by response and mitigation strategies.

The indicator is defined as the number of structure fires contained to the object or room of origin divided by the total number of structure fires. Structure fires are those fires in housing and other buildings.

A higher proportion of structure fires contained to the object or room of origin is more desirable.

The proportion of fires contained to the object or room of origin has varied between and within jurisdictions over time (figure 8.11).

Figure 8.11 Structure fires contained to the object/room of origin^{a, b, c, d, e, f, g, h}



^a Includes data for both urban and rural fire service organisations in all jurisdictions except NSW, Queensland, SA and the ACT, which report data for either urban or rural fire service organisations (but not both). ^b NSW data exclude the NSW Rural Fire Service, but include responses to calls outside the NSW Fire Brigades designated fire districts. ^c Victorian data for 2000-01 and 2001-02 exclude the Country Fire Authority. Data from 2002-03 to 2004-05 include the Country Fire Authority. ^d QFRS Rural Incident Database does not currently record the necessary information to calculate this measure. ^e SA data exclude the Country Fire Service ^f Figures include data provided by all fire brigades, both full-time and volunteer. ^g NT data exclude the Bushfires Council. ^h The average for Australia excludes rural fire service data for some years as per the jurisdictions' caveats.

Source: State and Territory governments (unpublished); table 8A.15.

Outputs — recovery

The Steering Committee has identified recovery as a key area for further development in future reports (box 8.9).

Box 8.9 Performance indicator — recovery

An output indicator of governments' objective to reduce the adverse effects of fires on the Australian community through recovery has yet to be developed.

Outputs — efficiency

Efficiency indicators report on the unit cost of service delivery. The calculation of unit costs requires the specification of outputs. For fire service organisations, this is a difficult task, given the diversity of activities undertaken. The fire sector has considered a range of options for specifying outputs.

Expenditure per person

'Expenditure per person' is an indicator of the efficiency of governments in delivering emergency management services (box 8.10). Expenditure is reported as the total cost of fire service organisations.

Box 8.10 Expenditure per person

'Expenditure per person' is included as an output indicator of governments' objective to deliver efficient emergency management services. The indicator is defined as fire service organisation expenditure per 1000 people.

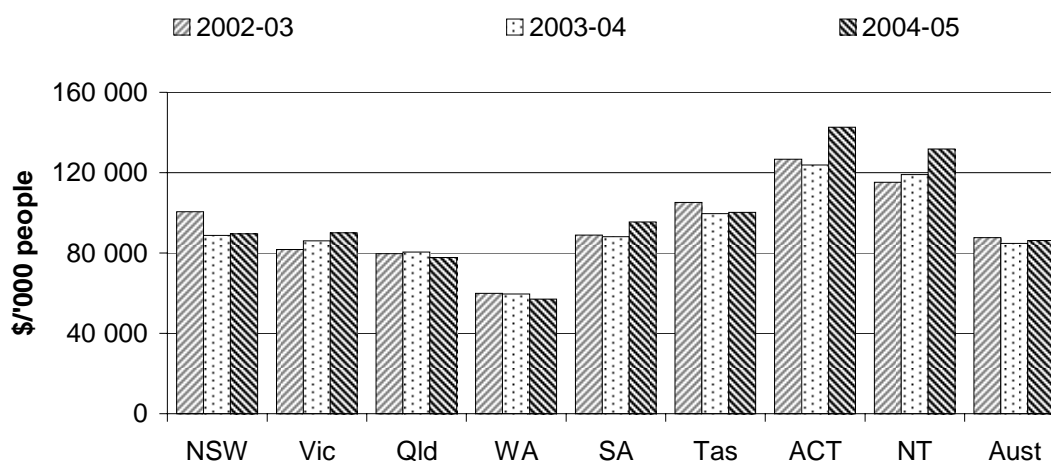
Expenditure is employed as a proxy for efficiency. Expenditure per fire is not used as a proxy for fire service organisation efficiency because an organisation that devotes more resources to the prevention and preparedness components to reduce the number of fire incidents could erroneously appear to be less efficient.

Holding other factors constant, lower expenditure per person represents greater efficiency. Efficiency data are difficult to interpret. While high or increasing expenditure per person may reflect deteriorating efficiency, it may also reflect changes in aspects of the service (such as improved response) or the characteristics of fire events (such as more challenging fires). Similarly, low or declining expenditure per person may reflect improving efficiency or lower quality (response times) or less challenging fires.

Cost to government is reported as total government funding of fire service organisations. Total expenditure is a measure of efficiency for fire service organisations, and government funding is a measure of the cost to government of fire service organisations. Both are reported, because revenue from other sources is significant for a number of jurisdictions.

Nationally, the total expenditure on fire service organisations per 1000 people in 2004-05 was \$87 884 (figure 8.12).

Figure 8.12 Fire service organisations expenditure (2004-05 dollars)^{a, b, c, d, e}

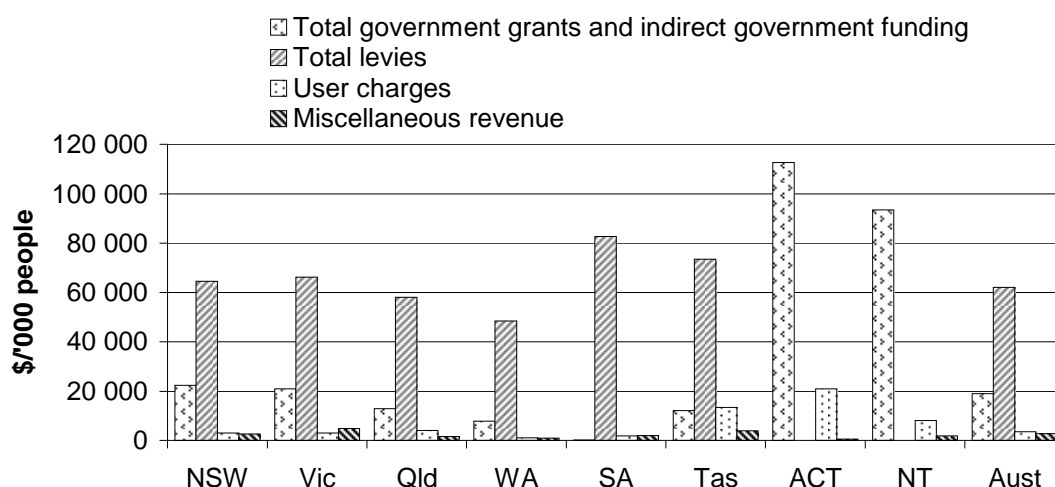


^a Total fire expenditure includes levies on insurance companies and property owners, user charges, fundraising and donations, and indirect revenue. Expenditure levels are adjusted using the ABS gross domestic product price deflator (2004-05 = 100) (table A.26) to arrive at a constant price measure. ^b NSW fire service organisations data for 2002-03 and 2004-05 are inflated by significant abnormal grants associated with natural disasters. ^c A property-based ESL (Emergency Services Levy) was introduced in WA on 1 July 2003; insurance fire levies ended on 31 December 2003. For this transitional year, 2003-04 funding includes part insurance fire levy and part ESL. The first full year of ESL funding was 2004-05. ^d User cost of capital in the NT includes assets for the NT Fire and Rescue Service only. Revenue from user charges includes the NT Fire and Rescue Service only, and other revenue includes the Bushfires Council only. ^e Funding for a special resources initiative was first included in Victorian data for 2000-01. There was an increase in the value of land and other assets due to revaluations for MFB. There was an increase in expenditure due to expenditure on appliance replacement and building alterations for MFB. Payroll costs for firefighters increased due to a 6.5 per cent salary increase. There was an increase in the payroll for support staff due to a 3 per cent wage increase, additional temporary staff costs, increased support staff numbers, increased leave and oncost provisions and FBT. MFB user cost of capital increase is related to June 2005 revaluations of \$34 million and the 8 per cent cost of capital calculation. Increase in other revenue is due to recharges to CFA (approximately \$2.5 million) for fibre optic communications/ICS support (SAP etc.).

Source: State and Territory governments (unpublished); tables 8A.17.

Nationally, total government grants and indirect government funding of fire service organisations per 1000 people in 2004-05 was \$18 968. Levies per 1000 people in 2004-05 averaged \$61 965 nationally, with relatively minor contributions from user charges and miscellaneous revenue (figure 8.13).

Figure 8.13 Fire service organisation funding, 2004-05^a



^a User cost of capital in the NT includes assets for the NT Fire and Rescue Service only. Revenue from user charges includes the NT Fire and Rescue Service only, and other revenue includes the Bushfires Council only.

Source: State and Territory governments (unpublished); table 8A.18.

Outcomes

The indicators of outcomes reported here relate to the objective of ESOs to minimise the effect of fire on life, property and the environment. The ‘fire death rate’, ‘fire injury rate’, ‘median dollar losses from structure fire’ and ‘total property losses from structure fire’ are indicators of outcomes in terms of the effect of fire on life, property and the environment. Caution in interpreting data for some indicators must be exercised (given, for example, the relatively small number of deaths and the significant fluctuations from year to year), particularly for jurisdictions with relatively small populations.

Fire death rate

The ‘fire death rate’ is an indicator of governments’ objective to minimise the adverse effects of fire events on the Australian community (box 8.11).

Box 8.11 Fire death rate

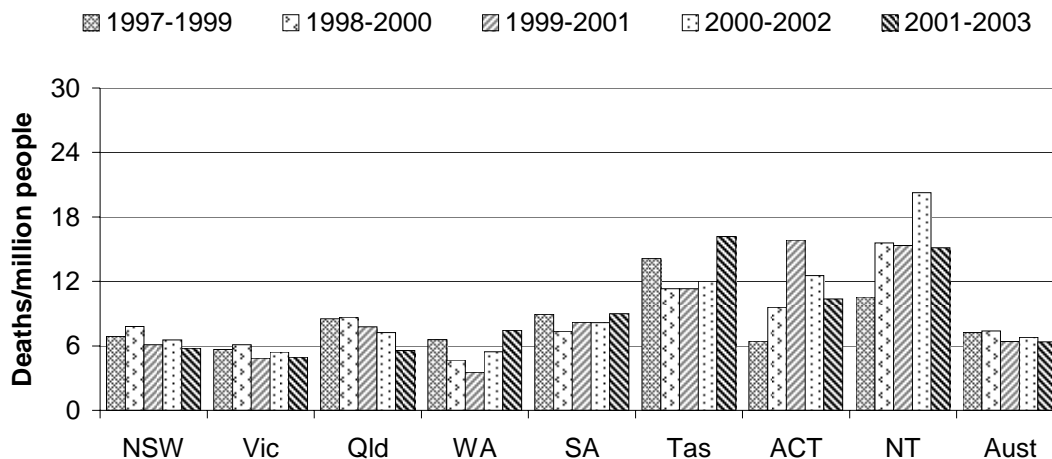
The 'fire death rate' is included as an outcome indicator of governments' objective to minimise the adverse effects of fires on the Australian community and enhance public safety.

The indicator is defined as the number of fire deaths per million people. A lower fire death rate represents a better outcome.

Nationally, there were 134 fire deaths in 2003. Exposure to smoke, fire and flames accounted for 92 deaths (68.7 per cent), followed by 35 fire deaths from intentional self-harm by smoke, fire and flames (26.1 per cent) and 7 deaths from assault by smoke, fire and flames (5.2 per cent) (table 8A.6). Nationally, the fire death rate was 6.7 deaths per million people in 2003.

Fire deaths data are volatile over time, given the small number of fire deaths. To overcome data volatility, a three year average fire death rate is reported (figure 8.14). Nationally, the three year average fire death rate was 6.4 per million people for 2001–2003.

Figure 8.14 Fire death rate^{a, b}



^a Fire deaths data are reported by the State or Territory of the deceased's usual residence, and by the year in which the death was registered. ^b The small number of deaths means it is difficult to establish patterns and provide detailed analysis. The rates fluctuate from year to year. This fluctuation demonstrates the data volatility, which must be taken into account in any interpretation of data.

Source: ABS Cat. no. 3303.0 (unpublished); table 8A.6.

Fire injury rate

The 'fire injury rate' is an indicator of governments' objective to minimise the adverse effects of fire events on the Australian community (box 8.12). Fire injuries are represented by hospital admissions and are reported by the State or Territory where the admission occurs (a person injured by fire may be treated more than once, and in more than one State or Territory).

Nationally, there were 2506 hospital admissions for fire injuries in 2003-04, or 12.5 admissions per 100 000 people (figure 8.15).

Fire injury rates are volatile over time, given the small number of fire injuries. To overcome data volatility, a three year average fire injury rate is also reported. Nationally, the three year average rate for 2001-02 to 2003-04 was 13.6 per 100 000 people (table 8A.7).

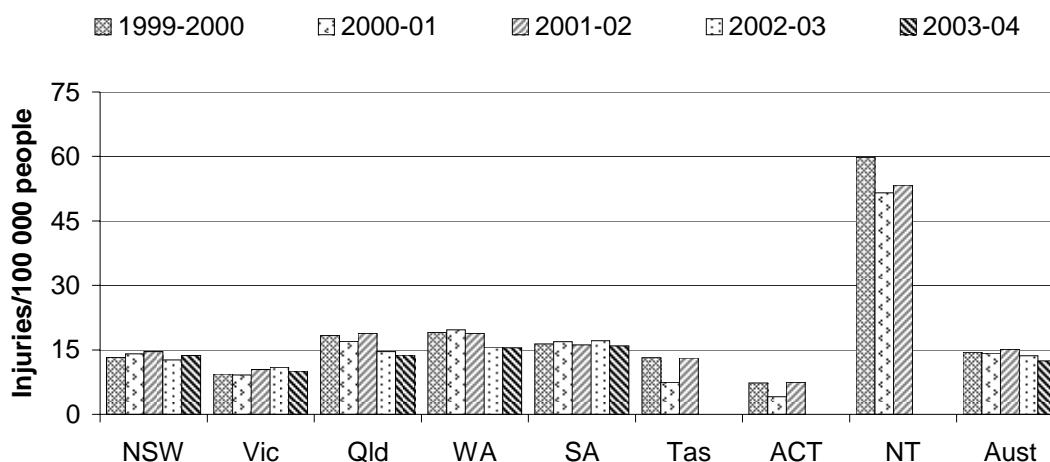
Box 8.12 Fire injury rate

The 'fire injury rate' is included as an outcome indicator of governments' objective to minimise the adverse effects of fires on the Australian community and enhance public safety.

The indicator is defined as the number of fire injuries per 100 000 people. A lower fire injury rate represents a better outcome.

Fire injuries are represented by hospital admissions (excluding emergency department non-admitted casualties). Deaths from fire injuries after hospitalisation have been removed from the fire injuries data for the time series because these are counted in the fire death rate.

Figure 8.15 Fire injury rate^a



^a Fire injuries are defined as the number of hospital admissions to public and private hospitals. The data exclude emergency department non-admitted casualties and fire injuries arising from arson, secondary fires resulting from explosions, and transport accidents. Fire injuries are reported by the State or Territory in which the fire injury is treated. If fire injury patients are transferred, the State or Territory in which they are treated may not be the same as the State or Territory in which their injury occurred.

Source: ABS (unpublished); AIHW (unpublished); table 8A.7.

Losses from structure fire

The ‘median dollar losses from structure fire’ (box 8.13) and the ‘total property loss from structure fire’ (box 8.14) are outcome indicators of the effect of fire on property. These data (expressed in real terms) have not been adjusted for jurisdictional differences in the costs and values of various types of building. In addition, NSW, Queensland, the ACT and the NT report data for urban or rural fire services but not both. Further, the method of valuing property loss from fire varies across jurisdictions.

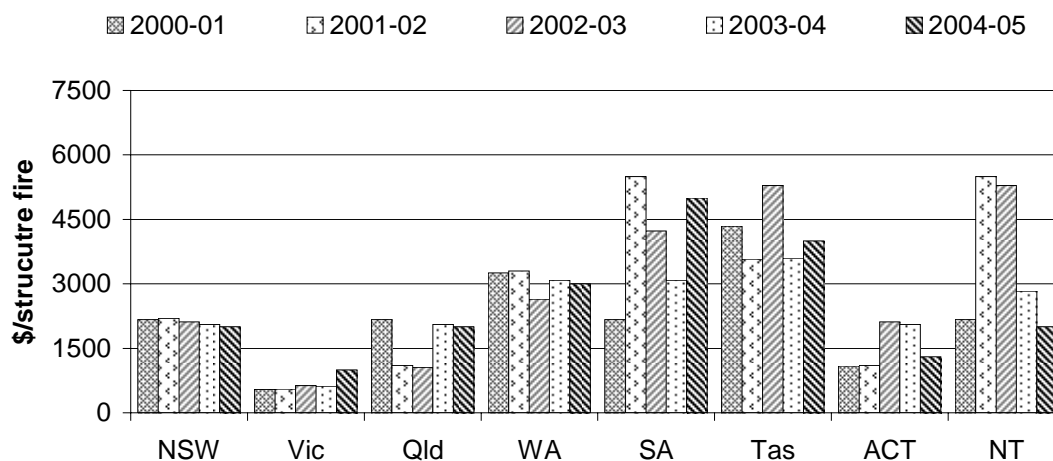
Box 8.13 Median dollar losses from structure fire

‘Median dollar losses from structure fire’ is included as an outcome indicator of governments’ objective to minimise the adverse effects of fires on the Australian community.

This indicator is defined as the median dollar losses from structure fire (a fire in a house or other building), adjusted for inflation. Lower median dollar losses represent a better outcome.

The median dollar loss varies across jurisdictions and over time. No clear national trends are evident (table 8A.8).

Figure 8.16 **Median dollar loss from structure fire (2004-05 dollars)^{a, b, c, d}**



^a Expenditure levels are adjusted using the ABS gross domestic product price deflator (2004-05 = 100) (table A.26) to arrive at a constant price measure. Estimates have not been validated by the insurance industry or adjusted for interstate valuation differences. ^b Includes data for both urban and rural fire service organisations in all jurisdictions except NSW, Queensland, the ACT and the NT, which report data for either urban or rural fire service organisations (but not both). ^c NSW data are for the NSW Fire Brigades only, but include responses to calls outside NSW Fire Brigades designated fire districts. Due to data collection issues, data for 2000-01 are from a sample representing 85 per cent of the incidents. Data for 2001-02 include an outlier that resulted in a direct dollar loss of more than \$60 million. ^d For the ACT, data for 2002-03 exclude the January 2003 wildfire that destroyed over 500 houses and resulted in losses in excess of \$200 million.

Source: State and Territory governments (unpublished); table 8A.8.

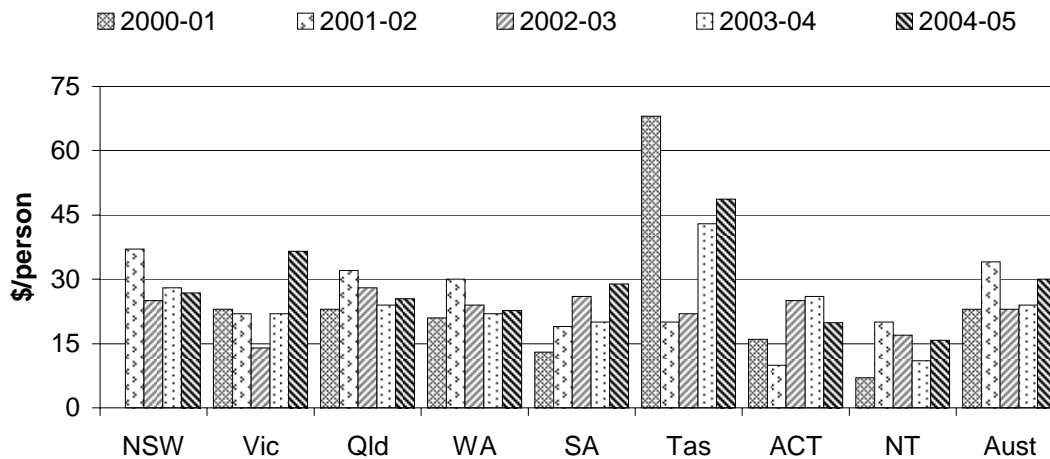
Box 8.14 **Total property losses from structure fire**

'Total property losses from structure fire' is included as an outcome indicator of governments' objective to minimise the adverse effects of fires on the Australian community.

This indicator is defined as the total property loss from structure fire (a fire in housing or other building) per person adjusted for inflation. Lower total property losses from structure fire per person represent better outcomes.

The total property loss per person (expressed in real terms) increased from 2003-04 to 2004-05 in all jurisdictions except NSW and the ACT (figure 8.17).

Figure 8.17 Total property loss from structure fire (2004-05 dollars)^{a, b, c, d, e, f, g, h}



^a Total property loss levels are adjusted using the Australian Bureau of Statistics (ABS) gross domestic product price deflator (2004-05 = 100) (table A.26) to arrive at a constant price measure. Estimates have not been validated by the insurance industry or adjusted for interstate valuation differences. ^b Includes data for both urban and rural fire service organisations in all jurisdictions except NSW, Queensland, the ACT and the NT, which report data for either urban or rural fire service organisations (but not both). ^c NSW data are for the NSW Fire Brigades only, but include responses to calls outside NSW Fire Brigades designated fire districts. Data for 2001-02 include an outlier that resulted in a direct dollar loss of more than \$60 million. ^d For Queensland, data for all years except 2003-04 exclude incidents solely attended by the Rural Fire Services. Incidents with missing or nil dollar losses have been excluded. ^e For Tasmania, figures supplied include data provided by all fire brigades, both full-time and volunteer. The small population size means figures are affected by single large-loss events. Increases have been influenced by rising property prices. ^f For the ACT, data for 2002-03 exclude the January 2003 wildfire which destroyed over 500 houses and resulted in losses in excess of \$200 million. ^g The average for Australia excludes rural fire service data for some years as per the jurisdictions' caveats. ^h Total property loss from structure fires in Victoria in 2004-05 was higher than the previous year, due to a number of fires with significant levels of individual loss.

Source: State and Territory governments (unpublished); table 8A.9.

8.4 Ambulance events

This section provides information on the performance of ESOs in providing emergency management services for ambulance events. Ambulance events are incidents that result in demand for ambulance services to respond. They include the provision of emergency pre-hospital patient care and transport in response to sudden injury and illness; the retrieval of emergency patients; and the accessing of emergency pre-hospital patients (for example, in confined spaces and hazardous environments).

Emergency management services for ambulance events

Ambulance service organisations are the primary agencies involved in providing emergency management services for ambulance events. In a limited number of cases, other organisations provide services such as medical transport for emergencies (table 8A.38). The descriptive information provided below on funding, incidents and human resources are for ambulance service organisations only (although, as discussed in section 8.1, these organisations are involved in other activities in addition to providing ambulance event services).

Funding

Total funding of ambulance service organisations covered in this Report was \$1.3 billion in 2004-05. Nationally, funding (expressed in real terms) increased each year from 2000-01 to 2004-05, with an average annual growth rate of 6.7 per cent (table 8.3).

Table 8.3 Funding of ambulance service organisations (2004-05 dollars) (\$ million)^{a, b, c}

	NSW ^d	Vic	Qld	WA	SA	Tas	ACT	NT	Aust ^e
2000-01	317.1	261.7	255.9	66.3	79.3	17.0	16.2	10.2	1 023.7
2001-02	309.6	300.2	257.3	71.5	95.6	19.4	17.6	10.5	1 081.7
2002-03	339.3	325.0	275.9	74.5	86.4	19.7	22.7	11.7	1 155.3
2003-04	362.6	334.9	295.7	79.0	96.2	20.3	21.4	12.0	1 222.0
2004-05	377.4	368.4	298.8	92.7	106.5	23.7	16.1	15.0	1 298.7

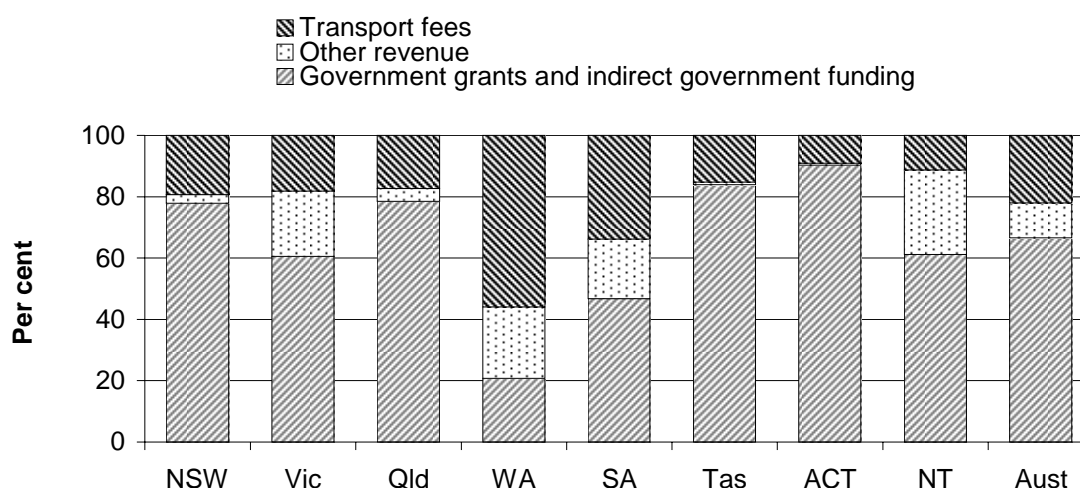
^a Funding levels are adjusted using the ABS gross domestic product price deflator (2004-05 = 100) (table A.26) to arrive at a constant price measure. ^b Funding reported is the sum of direct government grants, indirect government revenue, transport fees, subscriptions, donations and miscellaneous revenue. ^c Due to differences in definitions and counting rules, data reported may differ from data in agency annual reports and other sources. ^d NSW has a subscription scheme but funds are deposited in the consolidated revenue of NSW Treasury. ^e Totals may not sum as a result of rounding.

Source: State and Territory governments (unpublished); table 8A.19.

Ambulance service organisations are funded by a variety of sources, with non-government sources making a significant contribution. The primary sources of funding across all jurisdictions in 2004-05 were revenue grants from State and Territory governments, transport fees (from government hospitals, private citizens and insurance) and other revenue comprising subscriptions, donations and miscellaneous revenue (figure 8.18).

Nationally, 66.5 per cent of funding for ambulance service organisations in 2004-05 was provided as government grants and indirect government funding, with the remainder sourced from transport fees and other revenue (figure 8.18).

Figure 8.18 **Major sources of ambulance service organisation funding, 2004-05^a**



^a Other revenue is equal to the sum of subscriptions, donations and miscellaneous revenue.

Source: State and Territory governments (unpublished); table 8A.19.

Incidents

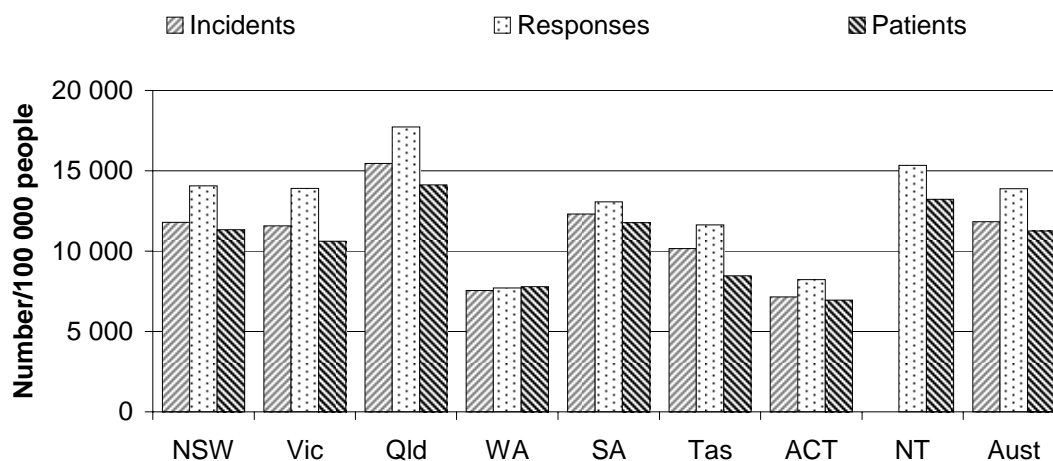
Ambulance services organisations attended 2.38 million incidents nationally in 2004-05 (table 8A.20). Most of these were emergency incidents (43.4 per cent), followed by non-emergency incidents (35.0 per cent) and urgent incidents (21.2 per cent).

Ambulance incidents, responses and patients per 100 000 people

The numbers of incidents, responses and patients are interrelated. Multiple responses/vehicles may be sent to a single incident, and there may be more than one patient per incident. There may also be responses to incidents that do not have people requiring treatment (so no patients).

Nationally, there were 11 835 incidents, 13 888 responses, and 11 256 patients per 100 000 people in 2004-05 (figure 8.19).

Figure 8.19 **Reported ambulance incidents, responses and patients, 2004-05^{a, b, c, d}**



^a An incident is an event that results in a demand for ambulance resources to respond. An ambulance response is a vehicle or vehicles sent to an incident. Multiple responses/vehicles may be sent to a single incident. A patient is someone assessed, treated or transported by the ambulance service. ^b NSW does not triage emergency calls. Urgent incident and response caseload are included in emergency caseload figures. ^c WA does not have a policy of automatically dispatching more than one unit to an incident unless advised of more than one patient. ^d For the NT, a response is counted as an incident.

Source: State and Territory governments (unpublished); table 8A.20.

Nationally, between 2003-04 and 2004-05, the number of incidents rose by 16.0 per cent, the number of responses increased by 3.7 per cent and the number of patients increased by 3.1 per cent (table 8A.20).

Human resources

Data on human resources for ambulance service organisations are reported by operational status on an FTE basis to provide a detailed description of the human resources profile for ambulance service organisations. Human resources include any person involved in delivering an ambulance service or managing the delivery of this service, including:

- ambulance operatives (including patient transport officers, students and base level ambulance officers, qualified ambulance officers, other clinical personnel and communications operatives)
- operational and corporate support personnel (including management, operational planners and coordinators, education and training personnel, corporate support personnel, non-operative communications and technical personnel)

-
- remunerated and non-remunerated volunteers (including any paid and unpaid volunteer personnel providing ambulance services on an on-call basis, and corporate support).

Nationally, 10 672 FTE salaried personnel were involved in the delivery of ambulance services in 2004-05. The majority of salaried ambulance personnel in 2004-05 were ambulance operatives (82.0 per cent) (table 8A.21).

Nationally, 6131 volunteer ambulance personnel (comprising 5038 ambulance operatives and 1093 support personnel) participated in the delivery of ambulance services in 2004-05. The proportion of volunteer personnel and the nature of their role varied across jurisdictions. Given the decentralised structure of its ambulance service operations, WA has a high number of volunteer operational and corporate support personnel (table 8A.21).

Aero-medical arrangements in Australia

There is a variety of arrangements for air ambulance or aero-medical services throughout Australia. Some of these arrangements involve services provided entirely by State/Territory ambulance services or by sub-contractors to their services, while others are provided completely externally to the State ambulance services. Some arrangements involve a mix of the two, where external organisations provide aircraft and/or air crew while ambulance service organisations provide paramedics to staff the air ambulances. The result is that the revenue (funding) and expenditure for air ambulance services are included in ambulance reports from some jurisdictions while in other jurisdictions none of these costs are included.

The Australian Government also provides some capital and recurrent funding for aero-medical service provision through the Royal Flying Doctor Service, mainly for primary health services to rural and remote communities. In some jurisdictions these same aircraft are used to transfer patients requiring higher level care.

Although it is not possible for ambulance service organisations to provide full activity and financial data for air ambulance services in Australia, the Council of Ambulance Authorities (CAA) has tried to identify as comprehensively as possible, air ambulance services provided by ambulance service organisations directly, or by other service providers such as the Royal Flying Doctor Service. In doing so, the CAA has counted the total number of aircraft available in each jurisdiction during 2004-05, and the component of expenditure that is funded through ambulance service expenditure (i.e. the expenditure figures do not represent total expenditure, only that component funded through ambulance services) (see table 8.4).

Table 8.4 **Aero medical resources and expenditure, 2004-05^a**

	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Aust</i>
Operated by State Ambulance Service									
Fixed wing	4	4	0	0	0	1	0	0	9
Helicopter	0	3	0	0	0	0	0	0	3
Operated by other service providers									
Fixed wing ^b	1	0	9	11	7	0	0	6	34
Helicopter	9	3 ^c	9	1	2	1	1	0	26
Total aircraft	14	10	18	12	9	2	1	6	72
Expenditure (\$'000)	36 000	26 945	2 550	733	0	3 100	328	0	69 656

^a These figures do not represent the total air ambulance medical expenditure for the jurisdiction. They only represent that portion funded through ambulance services and reported as part of the total ambulance service expenditure for each jurisdiction. ^b Fixed wing services in WA, SA and NT are provided by the Royal Flying Doctor Service (RFDS). In addition, AMS, a NT Government operated aero-medical service, operates in the Top End. ^c 'Second tier' aircraft, tasked by ambulance service as required.

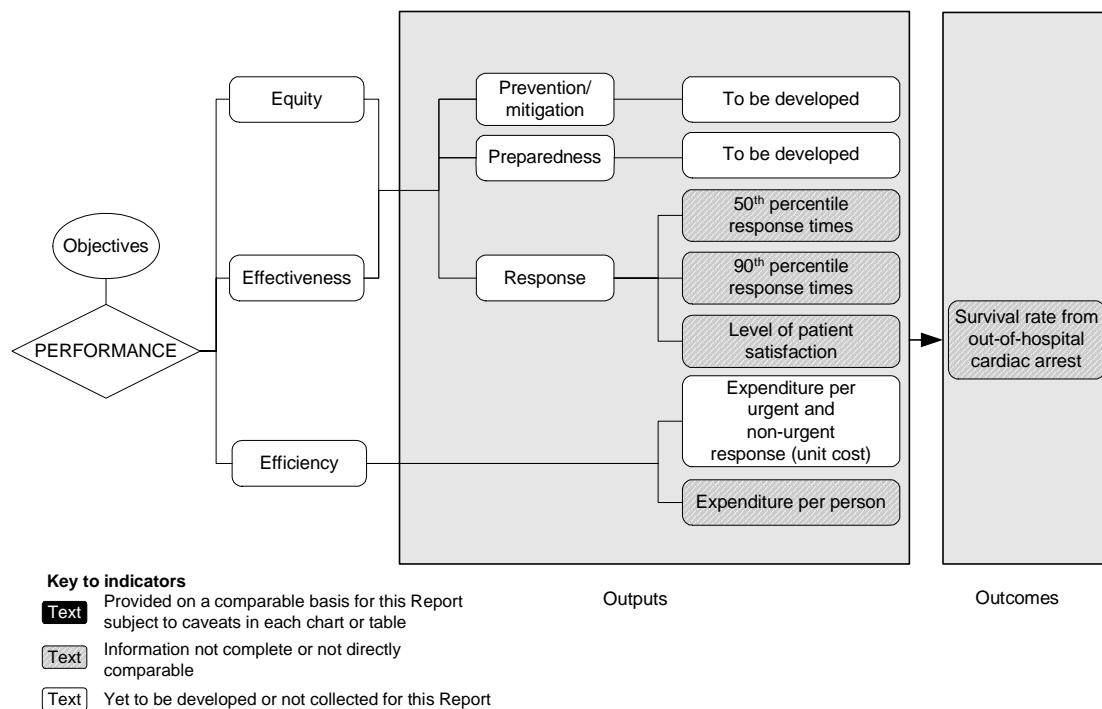
Source: Council of Ambulance Authorities (CAA).

Framework of performance indicators

Figure 8.20 presents the performance indicator framework for ambulance events, based on the general framework for all ESOs (figure 8.1). Definitions of all indicators are provided in section 8.8. Performance has been reported for a number of indicators, but different delivery contexts, locations and types of client may affect these indicators. Appendix A contains demographic and socioeconomic data that may assist in interpreting the performance indicators presented in this section.

The performance indicator framework for ambulance events shows which data are comparable in the 2006 Report. For data that are not considered directly comparable, the text includes relevant caveats and supporting commentary. Chapter 1 discusses data comparability from a Report-wide perspective (section 1.6).

Figure 8.20 Performance indicators for ambulance events



Performance indicators for ambulance events have been provided at the State and Territory government level in the Report since 1998. Evaluation of performance has been limited, however, by factors that make comparisons difficult. Comparison of the small, urban, government operated ACT Ambulance Service with the privately operated St John Ambulance Service in the NT, or the large, Statewide NSW Ambulance Service, for example, is limited by both demographic and corporate governance issues.

The effect of volunteer activity has implications for the interpretation of financial and non-financial performance indicators in this chapter. Notional wages costs for volunteers are not reflected in monetary estimates of inputs or outputs, which means that data for some performance indicators may be misleading where the input of volunteers is not counted but affects outputs and outcomes. This issue may be explored in the future as the Review continues to examine data on rural and remote service provision in the emergency services sector.

Key performance indicator results

Outputs — equity and effectiveness

Prevention/mitigation

The Steering Committee has identified prevention/mitigation as a key area for development in future reports (box 8.15). There are difficulties in identifying useful and reliable indicators of prevention/mitigation for ambulance events given that other elements of both the health and justice systems are involved in these areas.

Box 8.15 Performance indicator — prevention/ mitigation

An output indicator of governments' objective to reduce the adverse effects on the Australian community of emergencies requiring ambulance services through prevention and mitigation strategies has yet to be developed.

Preparedness

The Steering Committee has identified preparedness as a key area for development in future reports (box 8.16).

Box 8.16 Performance indicator — preparedness

An output indicator of governments' objective to reduce the effects on the Australian community of emergencies requiring ambulance services through preparedness strategies has yet to be developed.

Response

Indicators of response include the times during which 50 per cent and 90 per cent of first responding ambulance resources respond in code 1 situations, and the level of patient satisfaction (figure 8.20).

Response — 50th and 90th percentile response times

The 50th and 90th percentile response times for ambulance service organisations provide a measure of response activities (box 8.17). Response time data need to be

interpreted with care, however, because performance is not strictly comparable across jurisdictions:

- Response time data for some jurisdictions represent responses to urban, rural and remote areas, while others include urban areas only.
- Responses in some jurisdictions include responses from volunteer stations where turnout times are generally longer because volunteers are on call rather than on duty.
- Response times can be affected by the dispersion of the population (particularly rural/urban population proportions), topography, road/transport infrastructure and traffic densities.

While definitions of response times are consistent, not all jurisdictions have systems in place to capture all components of response time for all cases from the time of the call to arrival at the scene (figure 8.22).

Box 8.17 50th and 90th percentile response times

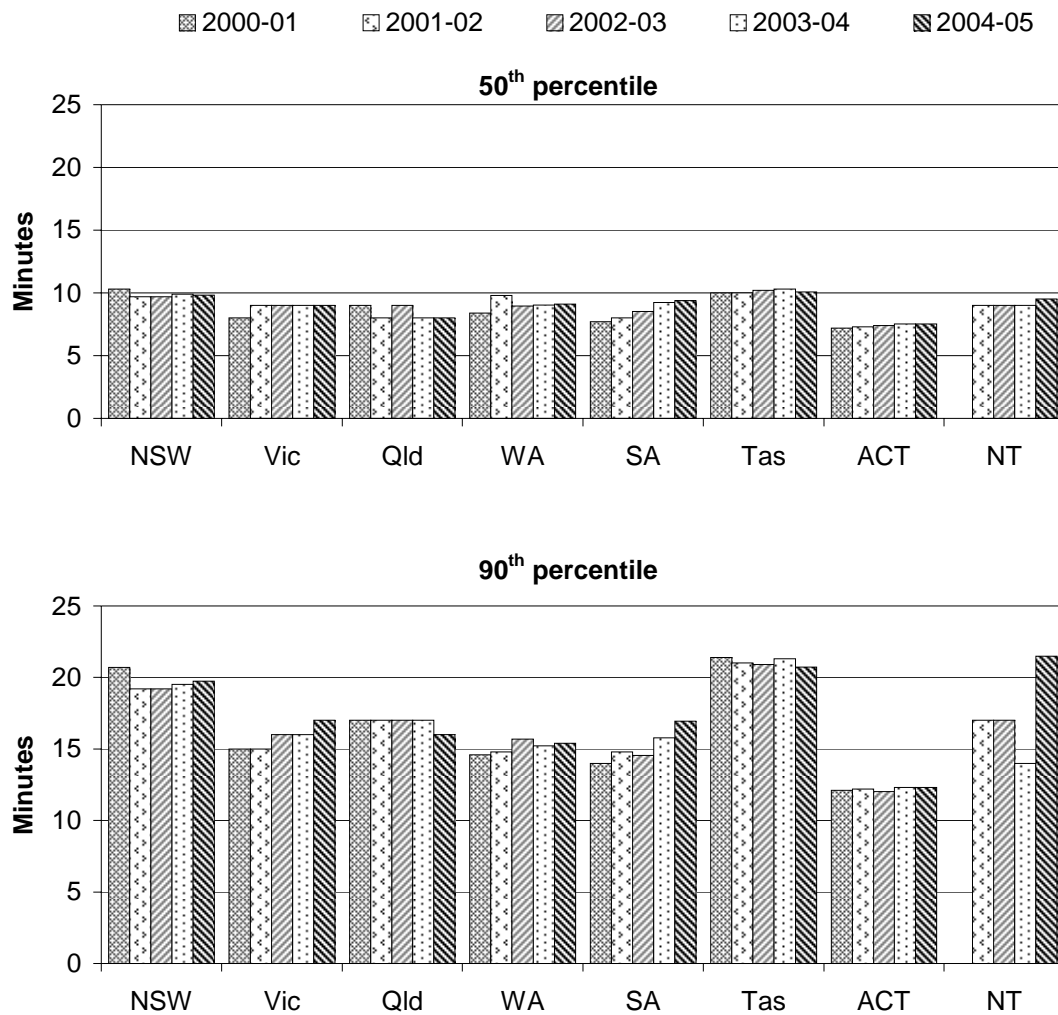
The 50th and 90th percentile response times are included as output indicators of governments' objective to reduce the adverse effects on the Australian community of emergencies requiring ambulance services through timely response.

The indicator '50th percentile response time' is defined as the time within which 50 per cent of the first responding ambulance resources arrive at the scene of an emergency in code 1 situations. Similarly, '90th percentile response time' is the time within which 90 per cent of the first responding ambulance resources arrive at the scene of an emergency in code 1 situations. Shorter response times are more desirable.

The response time is defined as the time taken between the initial receipt of the call for an emergency ambulance and the ambulance's arrival at the scene of the emergency (figure 8.21). Emergency responses are categorised by an assessment of the severity of the medical problem:

- code 1 — responses to potentially life threatening situations using warning devices
- code 2 — responses to acutely ill patients (not in life threatening situations) where attendance is necessary but no warning devices are used.

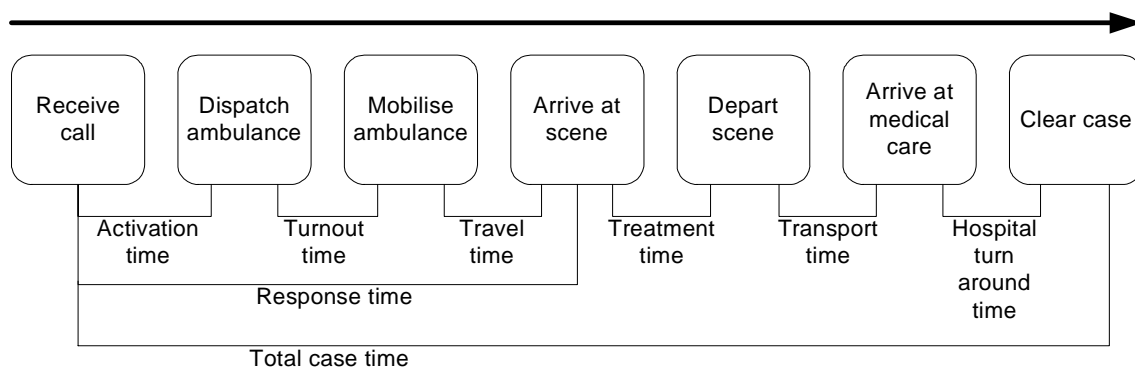
Figure 8.21 Ambulance response times^{a, b, c}



^a Differences across jurisdictions in definitions of response times, geography, personnel mix and system type for capturing data affect the comparability of response time data. ^b NSW does not triage emergency calls. Results for code 1 cases represent '000' and urgent medical incidents. ^c For Queensland, casualty room attendances are not included in response count, so are not reflected in response times data. Response times are reported from the CAD data.

Source: State and Territory governments (unpublished); table 8A.24.

Figure 8.22 Response time points and indicators for ambulance events



Response — level of patient satisfaction

Another indicator of response is the ‘level of patient satisfaction’ (box 8.18). The performance of ambulance service organisations in providing response services can be measured in terms of the satisfaction of those people who directly used the service (table 8A.25).

Data for 2003 to 2005 were collected by jurisdictions and collated by the CAA. The CAA surveyed obtained 4708 usable responses out of 2.2 million ambulance patients nationally who used an ambulance service in 2005 (table 8A.25). The estimated satisfaction levels for ambulance patients were comparable with previous years (figure 8.23).

Box 8.18 Level of patient satisfaction

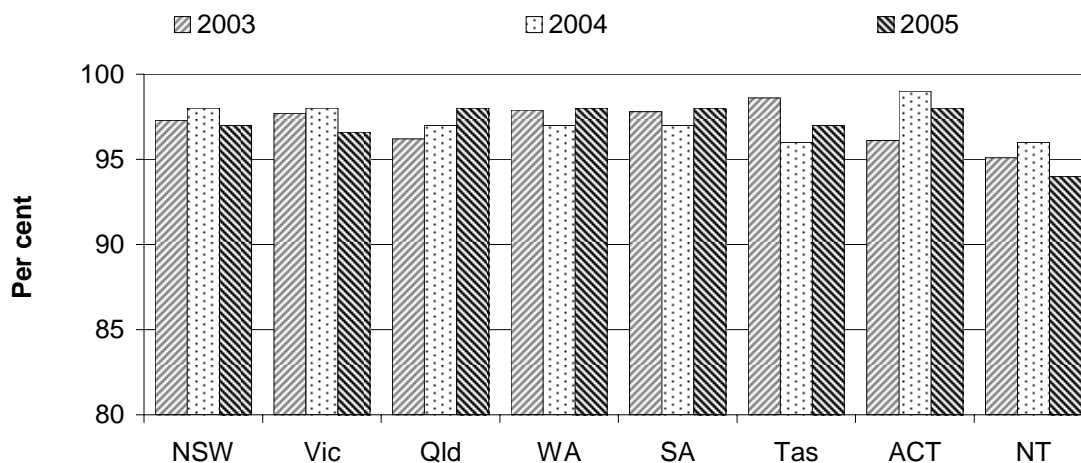
The ‘level of patient satisfaction’ is included as an output indicator of governments’ objective to reduce the adverse effects on the Australian community of emergencies requiring ambulance services by meeting patient needs.

The indicator is defined as the total number of patients who were either ‘satisfied’ or ‘very satisfied’ with ambulance services they had received in the previous 12 months, divided by the total number of patients.

A higher level or increase in the proportion of patients who were either ‘satisfied’ or ‘very satisfied’ suggests greater success in meeting patient needs.

This indicator does not provide information on why some patients were not satisfied. It also does not provide information on the level of patient expectations.

Figure 8.23 Proportion of ambulance users who were satisfied or very satisfied with the ambulance service^a



^a Based on a survey of people who used an ambulance service in the previous 12 months. Jurisdictions conducted the surveys at various times during 2003, 2004 and 2005.

Source: CAA (2002, 2003); table 8A.25.

Outputs — efficiency

The main efficiency indicator is expenditure by ambulance service organisations per 1000 people. Funding of ambulance service organisations per 1000 people is also reported to show the contribution of governments and other funding sources. Care needs to be exercised when interpreting efficiency data, however, because differences in the reporting of asset-related costs mean data are not fully comparable across jurisdictions.

Expenditure per urgent and non-urgent response

The Steering Committee has identified ‘expenditure per urgent and non-urgent response’ as an indicator of the efficiency with which governments deliver ambulance services. Data for this indicator were not available for the 2006 Report (box 8.19).

Box 8.19 Expenditure per urgent and non-urgent response

‘Expenditure per urgent and non-urgent response’ has been identified for development as an output indicator of governments’ objective to deliver efficient emergency management services.

Expenditure per person

'Expenditure per person' is an indicator of the efficiency of governments in delivering emergency management services (box 8.20). Care needs to be taken when comparing data across jurisdictions because there are differences in the reporting of a range of cost items and funding arrangements (funding policies and taxing regimes). Some jurisdictions, for example, have a greater proportion of government funding compared with other jurisdictions.

Nationally, total expenditure on ambulance service organisations per 1000 people was \$63 063 in 2004-05 (figure 8.24).

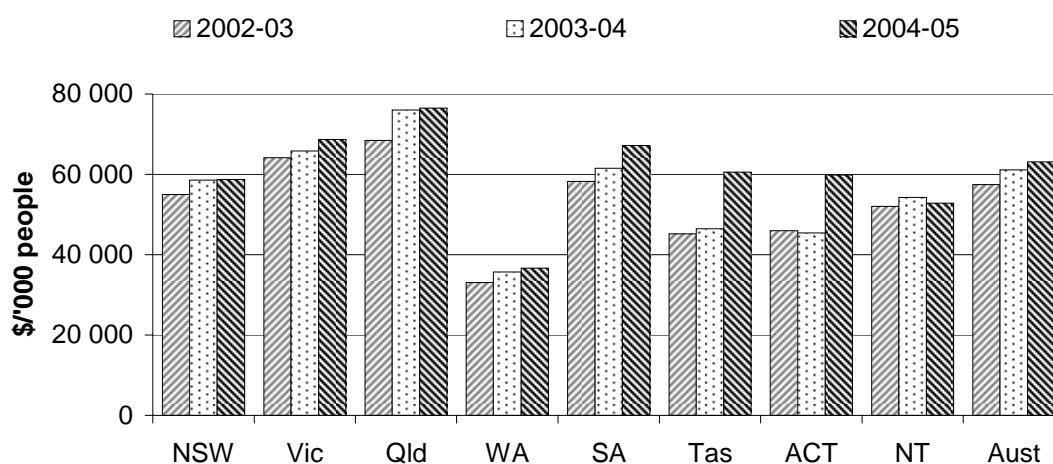
Box 8.20 Expenditure per person

'Expenditure per person' is included as an output indicator of governments' objective to deliver efficient emergency management services.

The indicator is defined as ambulance service organisation expenditure per 1000 people. Expenditure is reported as the total cost (total direct and indirect government and other ambulance expenditure) of ambulance service organisations. The cost to government is reported as total government funding of these organisations. Total expenditure is a measure of efficiency for ambulance services, and government funding is a measure of the cost to government of ambulance service organisations. Both are reported, because revenue from other sources is significant for a number of jurisdictions.

Holding other factors constant, a decrease in expenditure per person represents an improvement in efficiency. Efficiency data are difficult to interpret, however. While high or increasing expenditure per person may reflect deteriorating efficiency, it may also reflect changes in aspects of the service (such as improved response) or changes in the characteristics of emergencies requiring ambulance services (such as more serious para-medical challenges). Similarly, low or declining expenditure per person may reflect improving efficiency or lower quality (slower response times) or less severe cases.

Figure 8.24 Ambulance service organisations expenditure (2004-05 dollars)^a

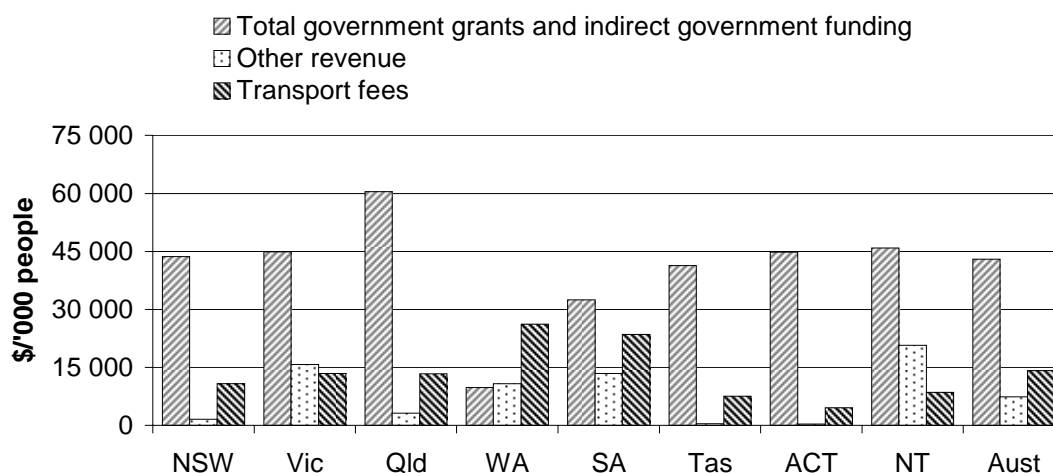


^a Expenditure levels are adjusted using the ABS gross domestic product price deflator (2004-05 = 100) (table A.26) to arrive at a constant price measure.

Source: State and Territory governments (unpublished); tables 8A.26 and 8A.27.

Nationally, total government grants and indirect government funding of ambulance service organisations per 1000 people was \$42 978 in 2004-05 (figure 8.25).

Figure 8.25 Ambulance service organisations funding, 2004-05^a



^a Other revenue is equal to the sum of subscriptions, donations and miscellaneous revenue.

Source: State and Territory governments (unpublished); table 8A.28.

Outcomes

Survival rate from out-of-hospital cardiac arrest

An outcome measure for ambulance events is the survival rate from out-of-hospital witnessed cardiac arrest (box 8.21).

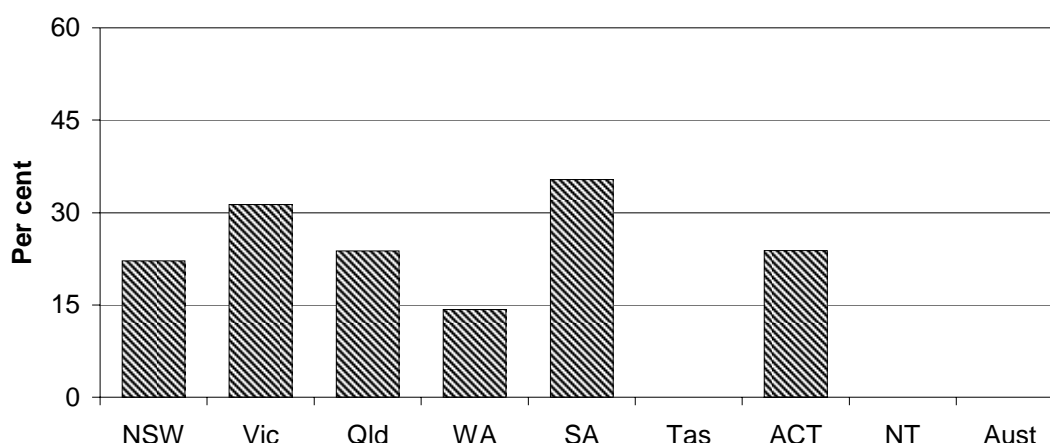
Box 8.21 Survival rate from out-of-hospital cardiac arrest

'Survival rate from out-of-hospital cardiac arrest' is included as an outcome indicator of governments' objective to reduce the adverse effects on the Australian community of emergencies requiring ambulance services.

The indicator is defined as the percentage of patients aged 16 years and over in bystander (not paramedic) witnessed out-of-hospital cardiac arrest of presumed cardiac origin on whom resuscitation was attempted and who had vital signs on arrival at hospital. Higher survival rates represent better outcomes.

The survival rate from out-of-hospital witnessed cardiac arrests varied across jurisdictions where data were available in 2004-05 (figure 8.26). Tasmania and the NT did not report on this indicator.

Figure 8.26 Cardiac arrest survival rate, 2004-05^{a, b}



^a The definition of witnessed cardiac arrest survival rates relates to the percentage of patients aged 16 years or over in bystander (not paramedic) witnessed out-of-hospital cardiac arrest of presumed cardiac origin on whom resuscitation was attempted and who had vital signs on arrival at hospital. ^b The ACT survival rate from out-of-hospital cardiac arrests data is a six year rolling average.

Source: State and Territory governments (unpublished); table 8A.23.

8.5 Road rescue events

A road rescue event is an accident or incident involving a motor vehicle and the presumption that there are injuries or that assistance is required from ESOs.

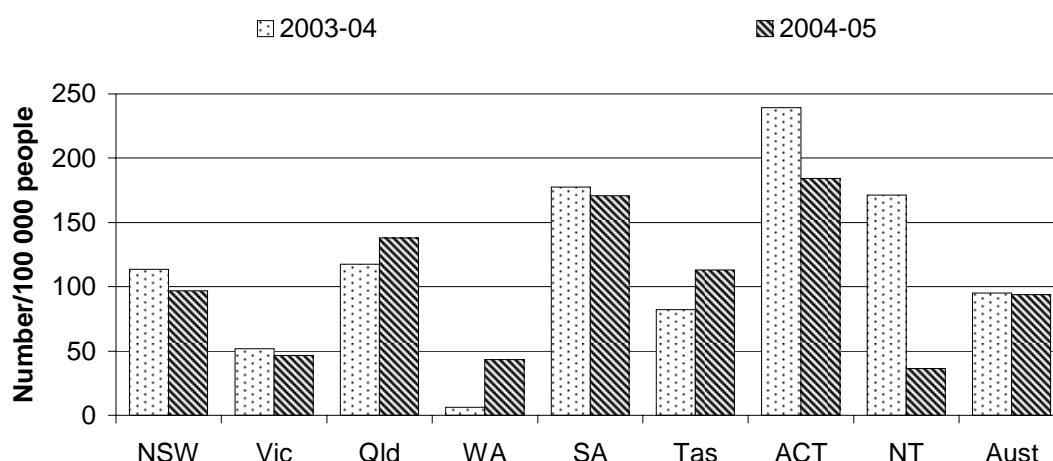
Emergency management services for road rescue events

In all jurisdictions, a diverse range of ESOs provide emergency management services for road rescue events. In some jurisdictions, several agencies provide road rescue services, although the trend is towards consolidation. In most jurisdictions, SES/TES have an important role in providing road rescue services, although this is not always the case. In Tasmania, the ambulance service provides road rescue services in urban areas, SES in most rural areas and the fire service in one rural area, while in NSW road rescue services are provided by five organisations.

Number of reported road rescue incidents

Nationally, there were 18 886 road rescue incidents in 2004-05, or 93.9 incidents per 100 000 people (table 8A.29). The number of incidents per 100 000 people varied across jurisdictions (figure 8.27).

Figure 8.27 **Reported road rescue incidents^{a, b, c}**



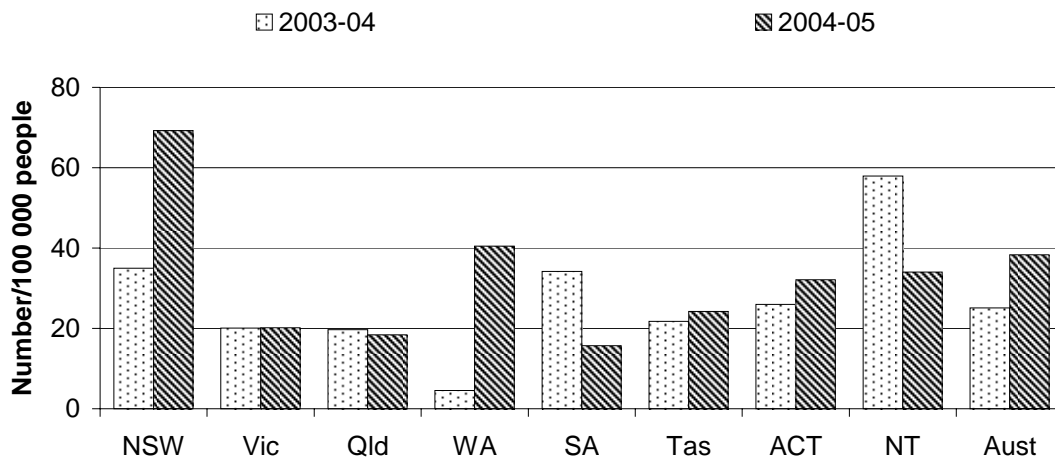
^a In Victoria, SES incidents reported are those where the SES responded as the primary rescue crew. ^b QFRS Rural Incident Database does not record the necessary information to satisfactorily calculate this measure. ^c In WA, the apparent rise in the number of road rescue incidents in 2004-05 is due to improved counting methods. Volunteer Emergency Services incidents are not included.

Source: State and Territory governments (unpublished); table 8A.29.

Number of reported road rescue extrications

The data for road rescue extrications per 100 000 people display some marked variations across jurisdictions and, in some cases, within jurisdictions between 2003-04 and 2004-05 (figure 8.28). These marked variations may reflect definitional issues and the newness of the collection.

Figure 8.28 **Reported road rescue extrications^{a, b, c, d}**



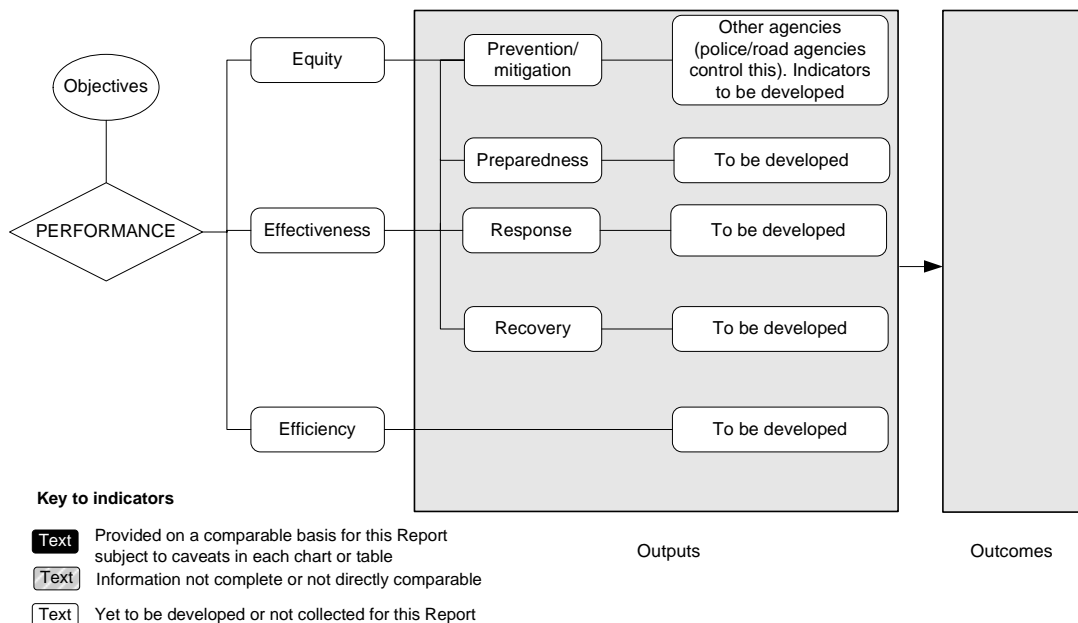
^a In Victoria, SES incidents reported are those where the SES responded as the primary rescue crew. ^b The apparent rise in the number of road rescue extrications in WA is due to improved counting methods. Volunteer Emergency Services incidents are not included. ^c QFRS Rural Incident Database does not currently record the necessary information to calculate this measure. ^d For SA, SES extrications are not available for 2004-05.

Source: State and Territory governments (unpublished); table 8A.30.

Framework of performance indicators

Figure 8.29 presents the performance indicator framework for road rescue events based on the general framework for emergency management (figure 8.1).

Figure 8.29 Performance indicators for road rescue events



Key performance indicator results

No performance indicators are reported this year for road rescue services. Work is being undertaken to develop and expand the scope of performance reporting for road rescue events (see section 8.6 below). Road rescue prevention/mitigation indicators are closely related to the indicators reported for road safety and traffic management in chapter 5 ('Police services').

8.6 Future directions in performance reporting

A number of developments are underway to improve data quality and comparability, and to expand the scope of reporting on emergency services.

Expanding the scope of reporting

Transport accidents are a significant cause of injury, both fatal and non-fatal across all jurisdictions. In the three calendar years from 2000 to 2002, transport accidents in Australia were the second most prevalent cause of fatal injury after suicide, with nearly 2000 deaths each year attributable to transport accidents. In 2003-04, transport accidents accounted for 39 000 hospitalisations (table 5A.63).

A primary aim of governments is to reduce death and injury and the personal suffering and economic costs of road crashes. Emergency service organisations provide services that contribute to these objectives through the provision of effective and efficient trauma mitigation and medical and retrieval services.

Previous editions of this chapter have provided road rescue information on the number of road rescue incidents and the number of events in which extrications occurred. The next challenge for the Emergency Management chapter of this report, however, is to demonstrate the cost, benefits and value of the full range of emergency risk management services related to road transport accidents. This, combined with data in other chapters, will provide a more comprehensive picture of the strategies and programs delivered by governments to reduce the impact of road transport accidents. Together with other research, this information will assist decision-making about appropriate investment in a balanced range of risk management services.

Using the PPRR framework applied in emergency management, these services could include:

- *prevention* of road crashes through community safety campaigns, regulation and law enforcement
- *preparedness* through safety engineering, vehicle technology and occupant protection (to reduce the severity of incidents)
- *response*, including emergency management services
- *recovery*, including work to reopen roadways, repair vehicles and rehabilitate patients.

Each of these activities contributes to social, economic and environmental outcomes. For emergency management, the most important result is minimising harm to the victims and improving the chances for a good patient outcome.

Other event-type services for which performance reporting has yet to be developed include: rescues (other than road rescues); natural events (other than landscape fires); technological and hazardous material incidents; emergency relief and recovery; and quarantine and disease control.

Improving data comparability and completeness

Work to improve the comparability and accuracy of data is underway. Performance indicators for fire, ambulance and road rescue services are being improved with the assistance of the Australasian Fire Authorities Council, the CAA and the Australian Council for State/Territory Emergency Services. These organisations will continue

to expand the scope of the data collected, and to refine data items and data definitions.

8.7 Jurisdictions' comments

This section provides comments from each jurisdiction on the services covered in this chapter. Appendix A contains data that may assist in interpreting the performance indicators presented in this chapter. These data cover a range of demographic and geographic characteristics, including age profile, geographic distribution of the population, income levels, education levels, tenure of dwellings and cultural heritage (including Indigenous and ethnic status).

New South Wales Government comments

“ The NSW Government continues its commitment to enhancing community safety, quality of life and confidence, by minimising the impact of hazards and emergency incidents on the people, environment and economy of NSW. In 2004-05 emergency service organisations (ESOs) undertook the following:

- Compartment Fire Behaviour Training was rolled out in NSW Fire Brigades (NSWFB) to further improve firefighter and community safety.
 - The Bushfire Environmental Assessment Code was reviewed to streamline the hazard reduction processes required to meet the *Rural Fires Act 1997* and *Environmental Assessment Legislation Amendment Act 2002*.
 - The State Emergency Service (SES) commenced implementation of a 24x7 Operational Communications Centre, the Rural Fire Service (RFS) launched its operations management system (ICON) and the SES commenced work on a state-wide online mapping system, and the Request For Assistance operational management system.
 - Operational staffing in the Ambulance Service of NSW (ASNSW) increased by 96, two new stations were opened and upgrading of the core skills for qualified ambulance officers commenced.
 - Automatic External Defibrillators (AED) were installed on fire engines at 30 NSWFB country fire stations to complement the resources of the ASNSW.
 - Fifty-two new NSWFB fire engines are in service, reducing the average fleet age to 9.6 years. The RFS tanker replacement program achieved delivery of 205 new and refurbished firefighting tankers. Eight new or refurbished NSWFB fire stations opened and the RFS Headquarters was relocated to a new centre at Homebush Bay with first class communications, operations and conference facilities.
 - A new patient allocation matrix was introduced to help ambulance officers to transport the patient to the most appropriate hospital. Real time notification to emergency departments on the estimated time of ambulance arrival and the condition of the patient has assisted hospitals in managing peak demand periods.
 - NSW ESOs participated in State Mitigation Strategy Planning and COAG Natural Disasters in Australia reform workshops through the State Emergency Management Committee.
 - The SES developed a FloodSafe Business Toolkit to assist small to medium sized businesses to prepare for the effects of flooding.
 - The NSW Ambulance ‘Health Counter Disaster Unit’ coordinated the national effort to provide a substantial mass casualty healthcare response to the tsunami effected regions in South East Asia, supported by NSWFB disaster logistics experts.
 - NSW ESOs contributed to planning and preparation for major emergencies and counter-terrorism response including involvement in the National Counter Terrorism Committee’s multi-agency Exercise Explorer.
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Victorian Government comments

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Victoria's emergency service organisations have been working closely together throughout the year in preparation for the 2006 Commonwealth Games. An Emergency Services Working Group was established to coordinate emergency planning and preparedness. Presentations and exercises are being conducted to evaluate arrangements and ensure awareness leading up to March 2006.

At the Premier's request, the Emergency Services Commissioner conducted a review of an incident at Melbourne Airport on 21 February 2005. The incident involved ambulance services treating 47 people and disrupted National domestic air transport for two days. The review found that Victoria's emergency management arrangements are of a high standard and that public safety was not affected. The review identified the critical need for well understood, timely, multi agency notification processes. The Commissioner's report made nine specific recommendations, all of which were accepted by the State Government.

Arrangements for the implementation of a single integrated point of responsibility for emergency services telecommunications were finalised during the year. As from 1 July 2005, Victoria has a new independent statutory authority (Emergency Service Telecommunication Authority) that is responsible for dispatching '000' calls to Police, Fire and Ambulance and 132 500 flood and storm emergency related calls to the Victorian State Emergency Service. Under the Government's State-wide Integrated Public Safety Communications Strategy (SIPSaCS) significant upgrades of communication and dispatch systems are in progress to improve operational performance and enhance coordination between emergency services.

The Victorian Government's commitment to delivering more responsive and safer ambulance services continued in 2004-05. The Metropolitan Ambulance Service referral service has been successful in diverting significant numbers of suitable cases to alternative service providers. Minimum standards for Non-Emergency Patient Transport operations have been developed in consultation with industry stakeholders and will come into force in 1 February 2006. There has also been significant investment in information systems; in particular the Victorian Ambulance Clinical Information System (VACIS) to replace paper based clinical records with an electronic data capture system transferring data to a central database.

A range of innovations have been introduced in locations more remote from ambulance stations or where rapid response times are critical, including the establishment of 25 Community Emergency Response Teams (CERT) to provide basic life support and first aid care in the local community until an ambulance arrives. The establishment of 17 Public Access Defibrillation (PAD) sites, which consist of teams of employees at public venues, trained to respond to a medical emergency and equipped with a defibrillator to be used in cases of cardiac arrest, has also boosted community capacity to manage medical emergencies until ambulance paramedics arrive.

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Queensland Government comments

“ The Queensland Government provides world class emergency and disaster management services through a holistic framework and infrastructure that integrates the emergency services within a single department. This unique model assists Queensland’s preparedness from an all-hazards perspective and facilitates multi-service collaboration, coordination and cooperation required to plan for and respond to individual emergencies, natural events as well as human-created accidental and deliberate events.

Queensland’s integrated and improved capability was strengthened with the opening in December 2004 of the Queensland Combined Emergency Services Academy at Whyte Island. The academy provides state of the art training facilities for all emergency services staff and volunteers. Another \$10 million was invested in a new multi-service Special Operations Centre at Cannon Hill which opened in February 2005 that will enable expert emergency response teams to be deployed throughout Australia and the Asia-Pacific region within hours of a disaster. The centre represents a major investment in preparedness to respond to accidental or deliberate chemical, biological, radiological, incendiary and explosive (CBRIE) events.

Queensland has also pioneered community Emergency Service Units to provide effective, timely and coordinated volunteer emergency services, such as State Emergency Service, Rural Fire Service and ambulance First Responder services in communities where there are limited resources. This development complements the work already undertaken to build capacity and improve service delivery to remote, isolated and indigenous communities.

The Queensland Ambulance Service (QAS) received its third Australian Business Excellence Award in 2005 and continues to improve on emergency response times with a near two percent improvement on the previous year. This has been aided by the employment of an additional 100 paramedics, as part of 240 extra paramedics over three years. This is to not only improve emergency response times, but also to improve services to rural, isolated and remote communities. In keeping with improving rural services, QAS will also train 60 paramedics over three years in partnership with Queensland Health to expand the role of rural paramedics to assist remote area nurses and rural doctors with ongoing patient care.

Key Queensland Fire and Rescue Service (QFRS) initiatives have been to enhance community bushfire hazard reduction and preparedness, together with bushfire response preparedness and capability in the urban/rural interface zone (iZone). Additional training officers have been allocated to deliver specific integrated training for permanent, auxiliary and volunteer firefighters working together in this operational environment. Also more than 50 rural firefighting vehicles, 20 firefighting trailers and portable dams have been purchased to support the rural fire service. QFRS is also ensuring better building fire safety standards through an inspections process of budget accommodation and other public buildings.

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Western Australian Government comments

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The WA Government continues to work collaboratively with the community to improve safety practices and to provide timely, quality and effective emergency services. Occupying over a third of Australia, WA's expansive land area, topography and demographic dispersal across rural and remote regions provide a challenging context for the delivery of emergency services. The extension of FESA's multi-skilled and multifunctional emergency services units is helping to address the problem of declining volunteers in rural and remote areas.

Firefighters on the ground are supported by rotary-winged Helitacs and fixed wing water bombers. In 2004-05 FESA extended its aerial firefighting capacity to cover a 120km zone around Perth. During the year aerial firefighters were deployed at 92 incidents, with Helitacs delivering approximately 3.2 million litres of water and 6 745 litres of foam in a total of 3 113 drops.

The role and responsibilities of FESA are being examined by the current legislative review of the emergency services Acts with reintroduction of the Emergency Management Bill into the Spring Session of the WA Parliament.

To further enhance the integration and management delivery of operational services, it is intended to create a single operational management structure to oversee the combined operations of the career and volunteer Fire and Rescue Service, State Emergency Services, Bush Fire Brigades, Volunteer Emergency Service Units and Volunteer Marine Rescue Service.

The 2004-05 year was the first complete year that the property-based Emergency Service Levy (ESL) was collected. Over \$7.1m of ESL capital grants were allocated for the construction or upgrade of 23 buildings, 65 fire appliances (new and refurbished) and provision of over 30 major assets for the SES including vehicles, boats, trailers and other major equipment. Volunteer units were allocated nearly \$7.5m in operating grants in 2004-05.

Ambulance services in Western Australia are comprised of road and air ambulance services. Non-government providers supply road ambulance services for most of the State and St John Ambulance Australia WA Ambulance Service (SJA) is the principal provider of these services. The 2004-05 year was the first year of a new contract between the Department of Health and SJA that will provide an additional 100 paramedics and a substantial capital works programme over five years. The additional resources are aimed primarily at enhancing metropolitan response times. Ambulance services in rural communities in WA are largely dependent on SJA volunteers with over 3 million volunteer hours being contributed annually.

The Royal Flying Doctor Service provides air ambulance services with 11 fixed wing aircraft. The FESA Emergency Rescue Helicopter Service (Rescue 1) has a primary 200 kilometre radius from Perth and reaches 90 per cent of WA's population. However, with refuelling, extended rescues are also possible. A St John Ambulance critical care paramedic is part of the crew of Rescue 1 to provide immediate specialised medical care.

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South Australian Government comments

To improve Public Safety the South Australian Government's vision is for emergency services:

- comprising dedicated, highly trained people
- using modern technology and equipment
- providing a community focus for positioning and aligning emergency services across Prevention, Preparedness, Response and Recovery
- efficiently working together and with the community
- efficiently managed and supported
- efficiently meeting modern challenges.

The Government has established the SA Fire and Emergency Services Commission (SAFECOM) to enhance community safety and make the best possible use of resources under the Fire and Emergency Services Act 2005.

SA Ambulance Service (SAAS) has increased collaboration with the Department of Health since moving into the Health portfolio in April 2004, while continuing to work closely with other emergency services agencies in response to major incidents including the Lower Eyre Peninsula bushfires in January 2005.

SAAS and other SA emergency services were involved in the multi-jurisdictional counter terrorist exercise Mercury 05 which provided an excellent way to test capabilities and procedures in response to a significant incident.

Major emergency management initiatives for 2005-06 include:

- implementing the recommendations of the COAG Reviews of Natural Disaster Management and Bushfires
- implementing arrangements under the Emergency Management Act 2004;
- improving emergency services' governance by establishing the Emergency Services Leadership Council
- planning SAAS's ambulance service delivery model, including: a new service delivery model through a review of SAAS's clinical governance, strategy and clinical development; identifying opportunities for linkages and involvement with government and health agencies from the Generational Health Review; and implementing improved and integrated out-of-hospital patient care services
- participating in the SA Computer Aided Dispatch (SACAD) project to replace computer aided dispatch systems for Police, Ambulance and SAFECOM (comprising the Metropolitan Fire Service, Country Fire Service, State Emergency Service)
- promoting long-term retention and recruitment of volunteers, including volunteer induction, recruitment and selection, reward and recognition, flexible learning and conflict resolution
- working closely with the Council of Ambulance Authorities and the Australasian Fire Authorities Councils' initiatives for service excellence.

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Tasmanian Government comments

Tasmania has a number of unique characteristics which impact on the provision of emergency services throughout the State, including the small and dispersed population (and subsequent lack of economies of scale), the reliance on a network of volunteers in rural and remote areas (affecting turnout times) and the State's rugged topography which impacts on response times and infrastructure costs (for example, radio communications).

Unlike some other jurisdictions, Tasmania includes data for both urban and rural fire and ambulance service performance. As Tasmania has the highest percentage of all jurisdictions of its population in rural areas, reliable comparisons with other jurisdictions are difficult.

Tasmania Fire Service (TFS) is comprised of four career brigades and 232 volunteer brigades that respond to fires in all metropolitan and rural areas. All incidents attended by these brigades are reported, and the TFS bears the full cost of funding both the operating and capital costs of its brigades.

Due to regular rains, a relatively mild bushfire season was experienced over the 2004-05 summer. There were no extended periods of extreme fire danger and few major bushfires.

The threat of terrorist activity has focussed the attention of TFS over the last twelve months on planning and training for chemical, biological and radiological incidents, and equipping and training firefighters in urban search and rescue.

TFS continues to deliver a broad range of programs to assist at-risk sectors of the community prevent fires and minimise the impact of fires that occur. Figures indicate that fire prevention programs targeting at-risk households are particularly effective, with significant decreases in house fire rates experienced over the last ten years.

The Tasmanian Ambulance Service (TAS) provides emergency ambulance care, rescue and transport services and a non-emergency patient transport service. In addition TAS provides fixed wing and helicopter aeromedical services and undertakes road rescue functions.

Tasmania is the only State that provides a free ambulance service to the general public, and as a consequence there is a far greater reliance on government funding for ambulance services than in other jurisdictions. Increasing demand for ambulance services is a major issue with the ageing of the population being the major factor in the growth in demand.

Tasmania trains a greater proportion of its salaried ambulance personnel to paramedic level than most other jurisdictions. Operational staffing increased by 20 positions and volunteer training was also improved.

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Australian Capital Territory Government comments

“ The ACT Government continued to enhance emergency management preparedness and capability through the establishment of the ACT Emergency Services Authority (the Authority) on July 1, 2004. Establishment of the Authority, which comprises the ACT Ambulance Service, the ACT Fire Brigade, the ACT Rural Fire Service and the ACT State Emergency Service, was a key recommendation of the McLeod ‘Inquiry into the Operational Response to the January 2003 Bushfires in the ACT’.

Headed by a Commissioner and underpinned by the newly created *Emergencies Act 2004*, the Authority’s mission is to ‘protect and preserve life, property and the environment in the ACT’. The Act requires the Authority to ensure effective and cohesive rural and urban fire services, state emergency services and ambulance services. The various inquiries conducted after the recent major bush fires heard criticism of the lack of coordination and cohesion within the ACT’s emergency services. Through the *Emergencies Act 2004*, and the establishment of the Authority, the ACT Government has taken positive steps to address this and the ACT’s emergency services now have:

- common governing legislation
- identical powers vested in their respective chief officers
- arrangements for the integration of planning and support between services in the event of crisis
- joint plans at the strategic level (for example, the Strategic Bushfire Management Plan,) and at operational and tactical levels
- efficient internal governance structures.

Other key achievements during the year were:

- implementation of a state of the art Computer Aided Dispatch (CAD) system, incorporating mobile data terminals and automatic vehicle location, for both the Ambulance Service and the Fire Brigade. This will be extended using an interface to the technology to provide the same capability for the Rural Fire Service and the State Emergency Service
- establishment of a permanent Emergency Coordination Centre
- development of an all-hazards evacuation strategy
- Trunk Radio Network commissioned which will be extended in the next year to improve operational coverage
- review of the organisational structure of each of the Authority’s response agencies
- introduction of joint operational plans
- engagement of the community through education and prevention activities
- extensive training of staff in the Australasian Interservice Incident Management System.

The ACT Government committed substantial additional funding during the year to support the many activities involved in the establishment of the Authority.”

Northern Territory Government comments

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In 2004-05, Northern Territory Fire and Rescue Services (NTFRS) and NT Emergency Service (NTES) continued to develop and implement initiatives to further promote and enhance community safety.

During the reporting period the NTFRS and NT Bushfires Council (BFC) worked together to develop the Community Safety Strategy and Fire Reduction Strategy. The aim of the strategies is to reduce the number of fires and the consequent impact which fires have on the community in terms of property loss, injury and death.

Fire Service facilities were increased with the opening of a new fire station at Humpty Doo. This station will service the Darwin rural region and will be responsible for all forms of fire fighting, road accident rescue, community safety and will assist with volunteer training in the area.

Counter Terrorism continues to be a major focus for the NTFRS. During the reporting period, the Special Operations Unit was established in order to further develop operational capabilities for response to incidents including Chemical, Biological and Radiological (CBR) and Urban Search and Rescue (USAR).

Following the review of the NTFRS and implementation of recommendations, the service is now in a much stronger position to deal with the challenges of the future. New initiatives included improvements to training through the conversion of the Australian Fire Competencies to the new Public Safety Training Package.

NTES produced a book, *Disaster Risk Management in Aboriginal Communities*, for distribution to all communities. NTES was also the lead agency in establishing a Planning Committee to coordinate the response of NT agencies to handle a Major Structure Collapse. Volunteers continued to provide essential assistance in responding to incidents.

NTFRS and NTES continue to promote safer communities through the development of policies, initiatives and infrastructure which provide the Northern Territory with a first class emergency management structure.

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8.8 Definitions of key terms and indicators

50th percentile ambulance service response times	The time within which 50 per cent of first ambulance resources respond.
50th percentile fire service response times	The time within which 50 per cent of first fire resources respond.
90th percentile ambulance service response times	The time within which 90 per cent of first ambulance resources respond.
90th percentile fire service response times	The time within which 90 per cent of first fire resources respond.
Alarm notification not involving fire	Fire alarm notification due to the accidental operation of an alarm, the failure to notify fire services of an incorrect test by service personnel or a storm induced voltage surge.
Ambulance expenditure	Includes salaries and payments in the nature of salaries to ambulance personnel, capital expenditure (such as depreciation and the user cost of capital) and other operating expenditure (such as running expenditure, contract expenditure, provision for losses and other recurrent expenditure). Excludes interest on borrowings.
Ambulance incident	An event that results in a demand for ambulance resources to respond.
Ambulance non-government revenue	Includes revenue from subscription fees, transport fees, donations and other non-government revenue. Excludes funding revenue from Australian, State and local governments.
Ambulance patient	A person assessed, treated or transported by the ambulance service.
Ambulance personnel	Any person employed by the ambulance service provider who delivers an ambulance service, manages the delivery of this service or provides support for the delivery of this service. Includes salaried ambulance personnel, remunerated volunteer and nonremunerated volunteer ambulance personnel.
Ambulance response	A vehicle or vehicles sent to an incident. There may be multiple responses/vehicles sent to a single incident.
Ambulance services	Pre-hospital care, treatment and transport services.
Emergency ambulance response	An emergency ambulance response to a pre-hospital medical incident or accident that necessitates the use of ambulance warning (lights and sirens) devices.
Events in which extrication(s) occurred	An event in which the assisted removal of a casualty occurs. An incident with multiple people extricated is counted the same as an incident with one person extricated.
Extrication	Assisted removal of a casualty.
False report	An incident in which the fire service responds to and investigates a site, and may restore a detection system.
Fire death	A fatality where fire is determined to be the underlying cause of death. This information is verified by coronial information.
Fire death rate	The number of fire deaths per 100 000 people in the total population.

Fire expenditure	Includes salaries and payments in the nature of salaries to fire personnel, capital expenditure (such as depreciation and the user cost of capital) and other operating expenditure (such as running expenditure, training expenditure, maintenance expenditure, communications expenditure, provision for losses and other recurrent expenditure). Excludes interest on borrowings.
Fire incident	A fire reported to a fire service that requires a response.
Fire injury	An injury resulting from a fire or flames, requiring admission to a hospital. Excludes emergency department outpatients.
Fire injury rate	The number of fire injuries per 100 000 people in the total population.
Fire personnel	Any person employed by the fire service provider who delivers a firefighting or firefighting-related service, or manages the delivery of this service. Includes paid and volunteer firefighters and support personnel.
Fire safety measure	<ul style="list-style-type: none"> • Operational smoke alarm or detector • Fire sprinkler system • Safety switch or circuit breaker • Fire extinguisher • Fire blanket • Fire evacuation plan • External water supply • The removal of an external fuel source • External sprinkler • Other fire safety measure.
Indirect revenue	All revenue or funding received indirectly by the agency (for example, directly to Treasury or other such entity) that arises from the agency's actions.
Landscape fires	Vegetation fires (for example, bush, grass, forest, orchard and harvest fires), regardless of the size of the area burnt.
Median dollar loss per structure fire	The median (middle number in a given sequence) value of the structure loss (in \$'000) per structure fire incident.
Non-emergency ambulance response	A non-emergency ambulance response that does not necessitate the use of ambulance warning (lights and sirens) devices.
Non-structure fire	A fire outside a building or structure, including fires involving mobile properties (such as vehicles), a rubbish fire, a bushfire, grass fire and an explosion.

Other incident	An incident (other than fire) reported to a fire service that requires a response. This may include: <ul style="list-style-type: none"> • overpressure ruptures (for example, steam or gas), explosions or excess heat (no combustion) • rescues (for example, industrial accidents or vehicle accidents) • hazardous conditions (for example, the escape of hazardous materials) • salvages • storms or extreme weather.
Paramedic response	A level of emergency care categorised as advanced life support.
Response time	The interval between the receipt of the call at the dispatch centre and the arrival of the vehicle at the scene (that is, when the vehicle is stationary and the handbrake is applied).
Road rescue	An accident or incident involving a motor vehicle and the presumption that there are injuries or that assistance is required from emergency services organisations.
Structure fire	A fire inside a building or structure, whether or not there is damage to the structure.
Structure fire contained to object or room of origin	A fire where direct fire/flame is contained to the room of origin (that is, excludes wildfires and vehicle fire in unconfined spaces). A room is an enclosed space, regardless of its dimensions or configuration. This category includes fires in residential and non-residential structures.
Survival rate for out-of-hospital witnessed cardiac arrest incidents	The percentage of patients with cardiac arrest of presumed cardiac cause, who have vital signs on arrival at hospital. Excludes incidents to children (younger than 16 years), drownings, trauma and other cases where aetiology is known (for example, asthma).
Urgent ambulance response	An urgent ambulance response to a pre-hospital medical incident or accident that does not necessitate the use of ambulance warning devices.
User cost of capital	The opportunity cost of funds tied up in the capital used to deliver services. Calculated as 8 per cent of the current value of noncurrent physical assets (including land, plant and equipment).

8.9 Supporting tables

Supporting tables are provided on the CD-ROM enclosed with the Report. The files containing the supporting tables are provided in Microsoft Excel format as \Publications\Reports\2006\Attach8A.xls and in Adobe PDF format as \Publications\Reports\2006\Attach8A.pdf. The files can also be found on the Review web page (www.pc.gov.au/gsp). Users without Internet access can contact the Secretariat to obtain the tables (see details on the inside front cover of the Report).

Fire events

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Table 8A.3	Fire service organisations and land management agencies reported total landscape fires (bush and grass) incidents
Table 8A.4	Accidental residential structure fires reported to fire service organisations per 100 000 households
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Ambulance Services

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Table 8A.20	Reported ambulance incidents, responses, patients and transport
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Table 8A.37	Treatment of assets by emergency management agencies
Table 8A.38	Summary of emergency management organisations by event type, 2003
Table 8A.39	Reported fires and other primary incidents, urban and rural inclusions and exclusions (number)

8.10 References

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